



November 8, 2013

Ms. Kimberly Tisa
PCB Coordinator
U.S. Environmental Protection Agency Region 1
5 Post Office Square – Suite 100
Boston, Massachusetts 02109-3912

Re: **PCB Remediation Plan**
Massachusetts College of Liberal Arts – Bowman Hall
375 Church St., North Adams, Massachusetts

Dear Ms. Tisa:

On behalf of the Division of Capital Asset Management and Maintenance (DCAMM), please find attached a PCB Remediation Plan prepared to comply with U.S. Environmental Protection Agency (EPA) requirements under 40 CFR 761.61 and 761.62. This Plan details the proposed remedial approach for PCB-containing building materials, including caulking, windows, ductwork, and limited quantities of concrete, which are scheduled to be removed for off-site disposal in conjunction with a renovation project to be performed at Bowman Hall in 2014.

This submittal includes a discussion of site characterization activities performed to date, laboratory analytical data, a data usability assessment, a discussion of remedial objectives and cleanup levels, the proposed remedial approach for each PCB-affected media, and project schedule.

Pending your review and approval, DCAMM is planning to commence renovation work during the Winter of 2014.

If you have any comments, questions, or require further information, please do not hesitate to contact me at the number listed above.

Sincerely,

WOODARD & CURRAN INC.

Jeffrey Hamel, LSP, LEP
Senior Vice President

Enclosure(s)

cc: MassDEP WERO
Barry Heidke, DCAMM



PCB REMEDICATION PLAN

Massachusetts
College of Liberal
Arts – Bowman Hall

DCAMM Project Number
NAC1001 DC2 – Bowman
Hall Renovation

woodardcurran.com
COMMITMENT & INTEGRITY DRIVE RESULTS

40 Shattuck Road Suite 110
Andover, Massachusetts, 01810

Project No. 226296

**Division of Capital
Asset Management
and Maintenance**

November 2013

TABLE OF CONTENTS

SECTION	PAGE NO.
1. INTRODUCTION	1-1
1.1 Project Description	1-1
1.2 Conceptual Site Model	1-2
2. BUILDING MATERIAL CHARACTERIZATION	2-1
2.1 Building Material Survey	2-1
2.2 Characterization Sample Summary	2-1
2.2.1 Sample Collection Methods	2-2
2.2.2 Laboratory Analysis	2-2
2.3 Characterization Results – Exterior Locations	2-3
2.3.1 Exterior Building Caulking	2-3
2.3.2 Exterior Adjacent Materials	2-5
2.4 Characterization Results – Interior Locations	2-6
2.4.1 Interior Window Caulking	2-6
2.4.2 Interior Ductwork Sealant	2-7
2.4.3 Interior Adjacent Drywall	2-8
2.5 Data Usability Assessment	2-8
3. REMEDIATION PLAN	3-1
3.1 Remediation Overview	3-1
3.2 Site Preparation and Controls	3-2
3.3 Bulk Product Waste removal	3-3
3.3.1 Exterior Expansion Joint Caulking	3-3
3.3.2 Typical Windows	3-3
3.3.3 Stairwell Windows	3-4
3.3.4 Ductwork	3-5
3.3.5 Excluded PCB Product Removal	3-6
3.4 Exterior Concrete Remedial Approach	3-6
3.4.1 Limited Concrete Removal	3-7
3.4.2 In-Place Management via Encapsulation	3-8
3.4.2.1 Concrete Sample Collection and Analyses	3-9
3.4.2.2 Concrete Encapsulation	3-10
3.4.2.3 Verification Wipe Sampling	3-10
3.5 Storage and Disposal	3-11
3.6 Site Restoration	3-12
3.7 Recordkeeping and Documentation	3-12
3.8 Schedule	3-12
4. DEED RESTRICTION	4-1
5. CONCEPTUAL MONITORING AND MAINTENANCE PLAN	5-1

LIST OF TABLES

TABLE

Table 2-1:	PCB Caulking and Sealant Characterization Data
Table 2-2:	Adjacent Material Characterization Data

LIST OF FIGURES

FIGURE

Figure 1-1:	Site Locus Map
Figure A201:	Building Elevations

LIST OF APPENDICES

APPENDIX

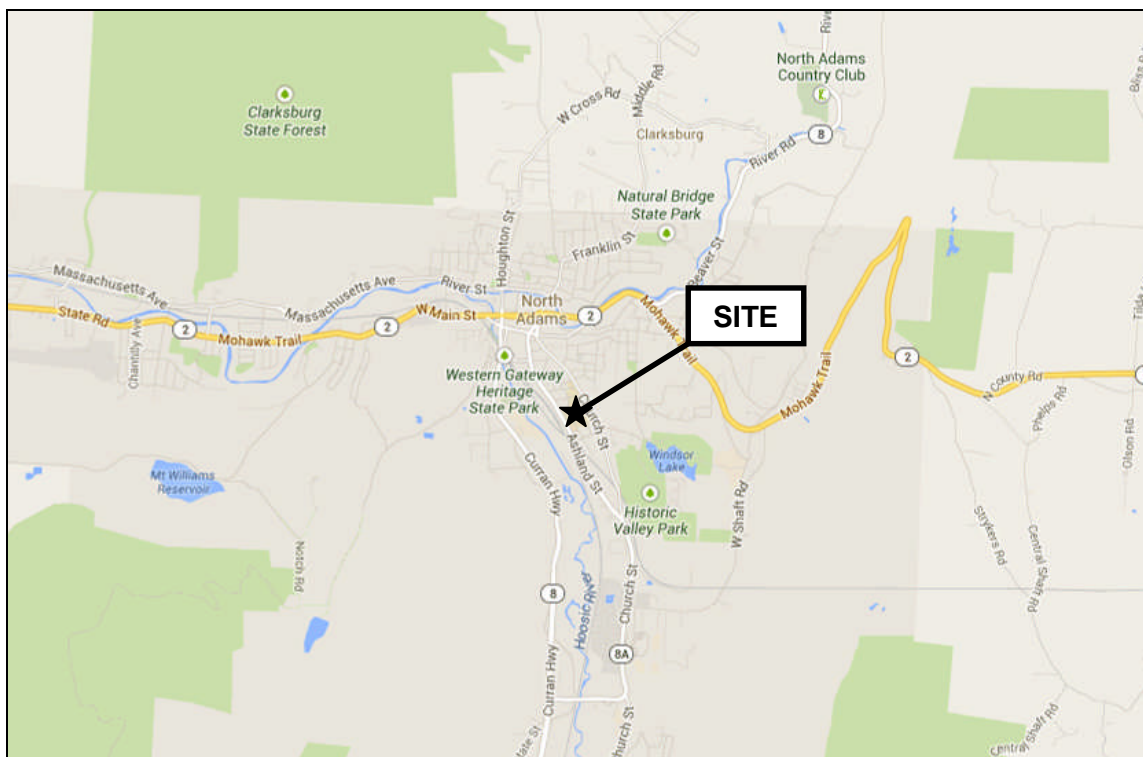
Appendix A:	Written Certification
Appendix B:	Laboratory Analytical Reports
Appendix C:	Ductwork Characterization Approach
Appendix D:	Product Specification Sheets

1. INTRODUCTION

This remediation plan has been prepared by Woodard & Curran, Inc. on behalf of the Division of Capital Asset Management and Maintenance (DCAMM) to comply with U.S. Environmental Protection Agency (EPA) requirements for polychlorinated biphenyl (PCB) cleanup and disposal under 40 CFR Part 761. This plan describes the data collected and details the proposed remedial approach for PCB bulk product waste and PCB remediation waste present at Bowman Hall, located at 375 Church Street on the Massachusetts College of Liberal Arts (MCLA) campus in North Adams, Massachusetts.

Bowman Hall is a three-story concrete structure originally constructed in 1970. The building is used by MCLA for classroom, laboratory, and office space. The building has an approximate gross square footage of 66,080 and building footprint of approximately 18,800 square feet. The building is bordered by Montana Street to the west, Blackinton Street to the north, and additional campus buildings to the east and south. Surrounding ground surfaces consist of concrete or brick walkways and grass-landscaped areas. A Site locus map is provided below.

Figure 1-1: Site Locus Map



1.1 PROJECT DESCRIPTION

Bowman Hall is scheduled for renovation in 2014. Renovation activities are anticipated to include exterior window replacement, exterior façade and roof work, and selective interior renovations. As described in this Plan, the renovation activities will involve the disturbance of caulking and/or sealants containing PCBs ≥ 50 parts per million (ppm) and building materials adjacent to these sealants. When renovation work is complete, the building will continue to be used by MCLA for classroom, laboratory, and office space.

The party responsible for the PCB remediation work proposed in this Plan is represented by:

Michael Lambert, Director of Design and Construction Services
Office of Planning, Design and Construction
Division of Capital Asset Management and Maintenance
One Ashburton Place, 15th Floor
Boston, MA 02108

A written certification signed by Mr. Lambert, as required per 40 CFR 761.61, is provided in Appendix A of this Plan.

1.2 CONCEPTUAL SITE MODEL

Certain joint caulking used as part of standard construction practices for masonry buildings and concrete structures erected between the 1950's and late 1970's, as well as other sealants used in building construction during this time period, are known to have been manufactured with PCBs. PCBs were added to caulking for durability, resistance to degradation, and as a softener/plasticizer for application. Due to the porous nature of concrete and other masonry surfaces, PCBs in caulking may penetrate into adjacent materials during application or over time, may leach or weather, and/or may be disturbed during renovations or other work. Production and approved usage of PCBs was halted in the United States in the late 1970s. As indicated above, Bowman Hall was constructed during this time period.

PCBs have been detected in exterior building caulking at concentrations up to 40,900 ppm, in interior window caulking at concentrations up to 181 ppm, and in interior ductwork seam sealants at concentrations up to 236 ppm. PCBs have been detected in adjacent building materials at concentrations up to 9.2 ppm. Under 40 CFR Part 761, caulking containing PCBs ≥ 50 ppm and select building materials coated or in direct contact with the caulking will be managed as a PCB Bulk Product Waste per 40 CFR 761.62 upon removal. Adjacent building materials identified with PCBs > 1 ppm will be managed as PCB Remediation Waste in accordance with 40 CFR 761.61.

A figure depicting the building's exterior elevations is provided as Figure A201.

2. BUILDING MATERIAL CHARACTERIZATION

Characterization samples were collected in observance of proper sampling collection techniques, analytical methods, and reporting procedures. This section provides a discussion of the nature and extent of PCB-affected media encountered at interior and exterior locations planned for renovations at Bowman Hall.

2.1 BUILDING MATERIAL SURVEY

An initial survey and sampling event completed by Covino Environmental Associates (Covino) in August 2012 identified four types of caulking or sealant materials: exterior building caulk, exterior window caulk, exterior window glazing sealant, and interior window caulk that may be disturbed during the planned renovations.

Between December 2012 and October 2013, Woodard & Curran completed on-site follow-up surveys of the building to document the presence and visually distinct types of suspect caulking or sealant materials in the planned renovation areas. As summarized below, caulking and sealants considered suspect for PCBs were observed at several exterior and interior locations of Bowman Hall:

- Exterior Caulking
 - Type A – observed at all exterior concrete to concrete joints on the east and west elevations only (e.g., at vertical joints between panels and columns, or horizontal joints between panels and slabs); not observed at joints associated with the north and south elevations (the short ends of the building).
 - Type B – observed at all exterior concrete to metal window frame joints (horizontal and vertical); also observed at exterior concrete to metal louver frame perimeters where a louver takes the place of a window in the same opening.
 - Type D – observed at all exterior windows (metal frame to glass pane joints).
 - Type E – observed at all exterior windows within metal to metal joints integral to the window assembly.
 - Miscellaneous types of caulking in limited quantities on the roof.
- Interior Caulking
 - Type C – observed at interior metal window frame to glass pane joints at operable windows only.
 - Type F – observed at interior metal to metal joints integral to the window assembly at operable windows only.
 - Type G – observed at isolated locations over joints where Type F caulking is typically present.
 - Type H – observed at interior metal window frame to adjacent drywall joints along vertical lengths of north and south stairwell curtain window walls.
 - Type I, J, and K – three visually distinct types of ductwork seam sealants.

2.2 CHARACTERIZATION SAMPLE SUMMARY

Four initial samples collected by Covino were reported with PCBs at concentrations ranging from 5.8 to 30,400 ppm. Woodard & Curran performed further characterization sampling to determine the nature and extent of building materials impacted by PCBs. A total of 36 primary samples were collected and analyzed for PCBs between December 2012 and October 2013. A breakdown of samples collected by media is provided below:

- Exterior building materials samples:
 - Bulk caulking or glazing sealants (16 samples; PCB concentrations ranging from non-detect [<0.070] to 40,900 ppm)
 - Bulk concrete (9 samples; PCB concentrations ranging from non-detect [<0.093] to 1.94 ppm)
- Interior building material samples:
 - Bulk caulking or glazing sealants (13 samples; PCB concentrations ranging from 8.42 to 236 ppm)
 - Bulk drywall (2 samples; PCB concentrations of 0.26 and 9.2 ppm)

2.2.1 Sample Collection Methods

Characterization of porous surfaces was performed in accordance with the EPA Region 1 *Standard Operating Procedure For Sampling Porous Surfaces for Polychlorinated Biphenyls (PCBs) Revision 4, May 5, 2011*. Specifically, the following types of samples were collected:

- Caulking samples were collected by cutting and scraping the caulking from the joint with hand tools. If adjacent media (e.g., concrete or a foam backer rod) was inadvertently removed in the process of sample collection, this media was physically removed from the caulking before the sample was placed in its sample container.
- Concrete sampling was conducted using a hammer drill. Prior to drilling at locations adjacent to caulked joints (i.e., within 0 to 1 inch from the joint), the adjacent caulking was removed and duct tape used to tape the joint to prevent potential cross-contamination effects from the sample collection process. Holes were made into the media to a depth of 0.5 inches and spanned a length necessary to achieve the required sample volume. After the holes were made, the bulk material was scooped from the surface using hand tools and placed in the appropriate sample containers.
- Drywall samples were collected by cutting pieces of drywall from the wall using hand tools.

Where samples were collected with non-dedicated tools, the sampling equipment was decontaminated between each sampling location using a limonene-based cleaner (terpene hydrocarbon). A new pair of clean Nitrile gloves was used at each location where gloves came into contact with sample media.

2.2.2 Laboratory Analysis

Bulk samples collected by Woodard & Curran were logged on standard chain of custody (COC) forms and stored on ice for delivery to Analytics Environmental Laboratory of Portsmouth, New Hampshire or ConTest Analytical Laboratory of East Longmeadow, Massachusetts. Initial caulking samples collected by Covino were logged on standard COC forms and delivered to Spectrum Analytical Inc. of Agawam, Massachusetts. All samples were extracted using USEPA Method 3540C (Soxhlet Extraction) and analyzed for PCBs using USEPA Method 8082.

The complete laboratory analytical reports for the characterization data collected in support of this plan are provided in Appendix B.

2.3 CHARACTERIZATION RESULTS – EXTERIOR LOCATIONS

2.3.1 Exterior Building Caulking

Woodard & Curran visually surveyed and sampled representative caulking and sealant samples observed at exterior window, masonry, and roof joints. Eight different types of exterior caulking or sealants were observed within the project work area and 16 individual samples were submitted for analysis. The sampled materials are summarized below with laboratory results presented on Table 2-1. Laboratory analytical reports are provided in Appendix B.

- **Type A** – observed at all exterior concrete to concrete joints on the east and west elevations only (e.g., at vertical joints between panels and columns, or horizontal joints between panels and slabs); not observed at joints associated with the north and south elevations (the short ends of the building). Two samples were collected from Type A sealant and were reported with PCB concentrations of 593 and 8,690 ppm. Similar material collected by Covino had a reported PCB concentration of 30,400 ppm.
- **Type B** – observed at all exterior concrete to metal window frame joints (horizontal and vertical); also observed at exterior concrete to metal louver frame perimeters where a louver takes the place of a window in the same opening. Two samples were collected from Type B sealant and were reported with PCB concentrations of 6,190 and 40,900 ppm. Similar material collected by Covino had a reported PCB concentration of 2,500 ppm.
- **Type D** – observed at all exterior metal frame to glass pane joints. Two samples were collected from Type D sealant and were reported with PCB concentrations of 12.2 and 809 ppm. Similar material collected by Covino had a reported PCB concentration of 5.8 ppm.
- **Type E** – observed at all exterior windows within metal to metal joints integral to the window assembly. Three samples were collected from Type E sealant and were reported with PCB concentrations ranging from 14.8 to 118.5 ppm.

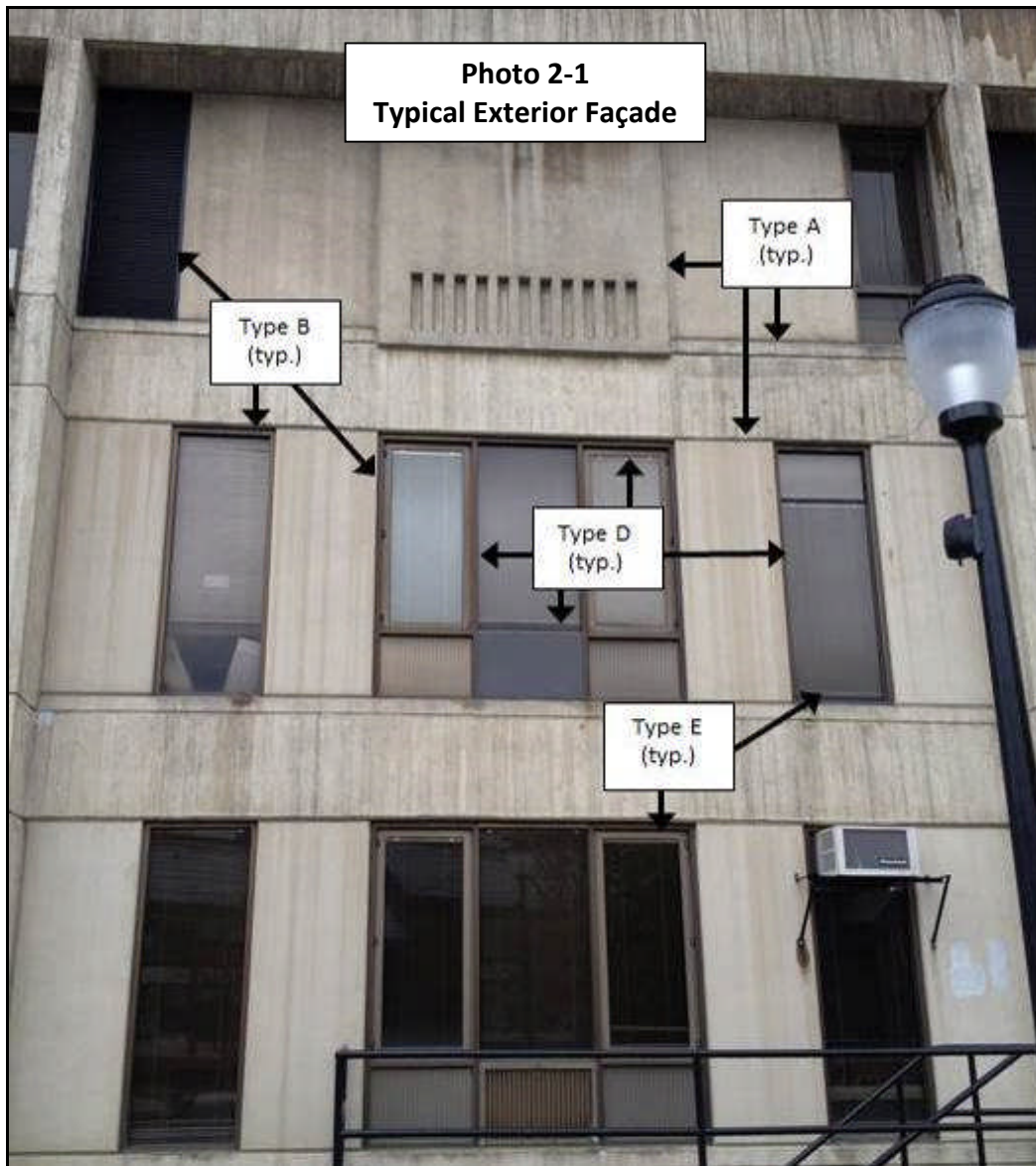
In summary, all four types of exterior window and expansion joint sealants were reported with PCBs ≥ 50 ppm in at least one sample, the Federal regulatory threshold for a PCB bulk product waste. As such, these materials are considered to contain PCBs at concentrations ≥ 50 ppm for the purposes of this Remediation Plan.

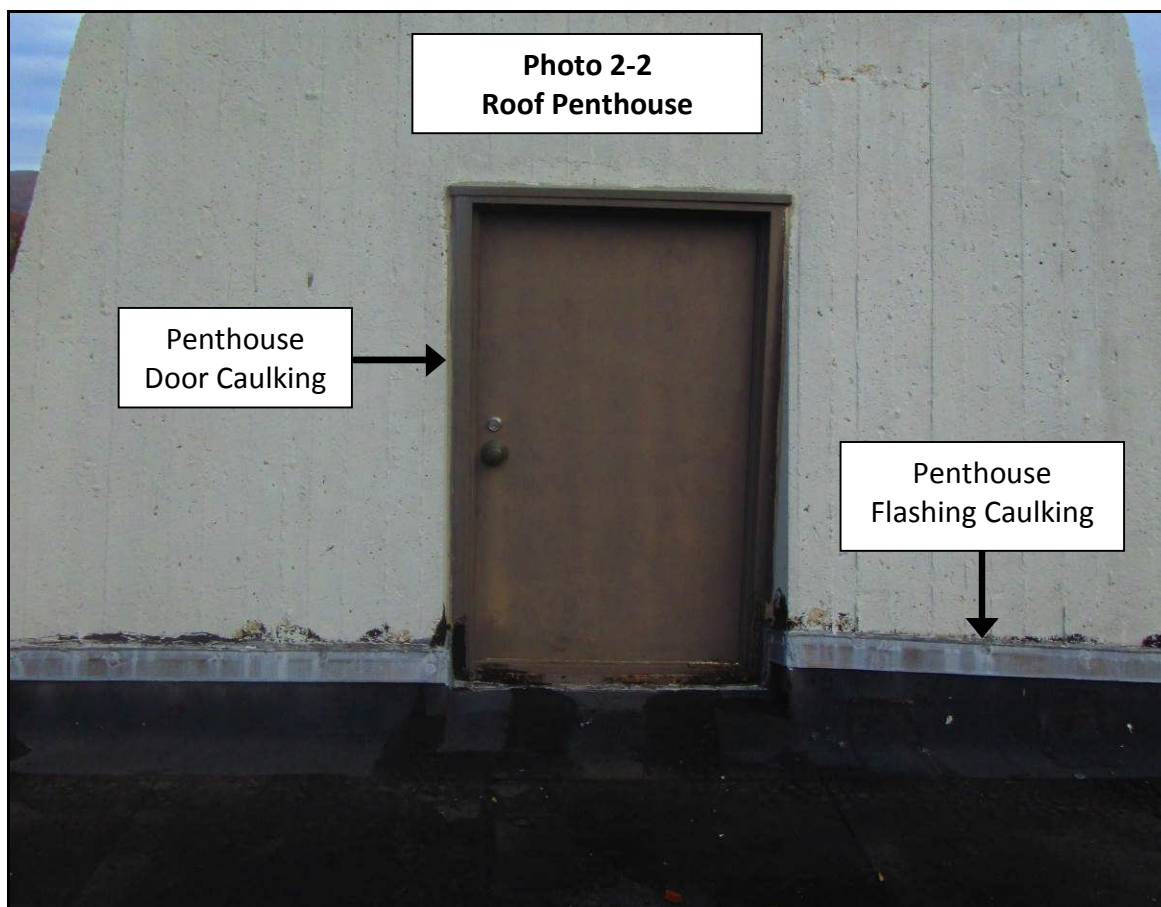
Four types of roof sealants were observed and sampled:

- Three types of caulking were observed at joints between the concrete penthouse and the perimeter metal flashing. All three types of caulking at this joint type were reported as non-detect for PCBs (< 0.75 ppm).
- One type of caulking was observed at the joint between the concrete penthouse and a metal door frame. One sample collected from this caulking was reported with PCBs at 2.5 ppm.

Based on the results of the samples collected from the roof, it has been determined that the flashing sealants at the penthouse perimeter are not regulated for PCBs (all non-detect). The door frame sealant reported with PCBs at 2.5 ppm has been determined to meet the definition of an Excluded PCB Product as defined at 40 CFR 761.3 due to the apparent age of the door and sealant, and absence of records indicating that the door or sealant had been replaced since the building was constructed in 1970.

Photos of the exterior façade and roof showing all exterior caulking types are provided below.





2.3.2 Exterior Adjacent Materials

Between August and October 2013, Woodard & Curran collected bulk concrete samples from concrete to determine the level of PCBs that may have migrated to adjacent materials. Given the release mechanism, concrete in direct contact with the caulking was assumed to contain detectable concentrations of PCBs, and concrete not in direct contact with the caulking would likely contain levels of PCBs that decrease with increasing distance from the caulking joints. A total of nine concrete samples were collected and submitted for laboratory analysis.

The results of the adjacent material samples are presented on Table 2-2 and are summarized as follows:

- **Type A Expansion Joint (PCBs in caulking range from 563 to 30,400 ppm)**
 - Concrete spandrel above horizontal joint: PCBs reported at 1.94 ppm at a distance of 0 to 1 inches above joint; PCBs reported as non-detect (< 0.09 ppm) at a distance of 7 to 8 inches above joint.
 - Concrete panel below horizontal joint: PCBs reported at 0.36 ppm at a distance of 0 to 1 inches below the joint;
 - Concrete panel beside vertical joint: PCBs reported at 0.23 ppm at a distance of 0 to 1 inches from the joint;
 - Concrete pad (horizontal surface) adjacent to building wall joint: PCBs reported as non-detect (< 0.095 ppm) and at 0.90 ppm in two samples at a distance of 0 to 1 inches from the joint.

- **Type B Window Joint (PCBs in caulking range from 2,500 to 40,900 ppm)**

- Concrete spandrel above horizontal window joint: PCBs reported at 0.57 ppm at a distance of 0 to 1 inches above the joint;
- Concrete spandrel below horizontal window joint: PCBs reported at 0.33 ppm at a distance of 0 to 1 inches below the joint;
- Concrete panel beside vertical window joint: PCBs reported at 0.48 ppm at a distance of 0 to 1 inches from the joint;

In summary, at the tested locations, PCBs appear to have decreased to levels below 1 ppm within the first inch away from the caulked joint with the exception of one location.

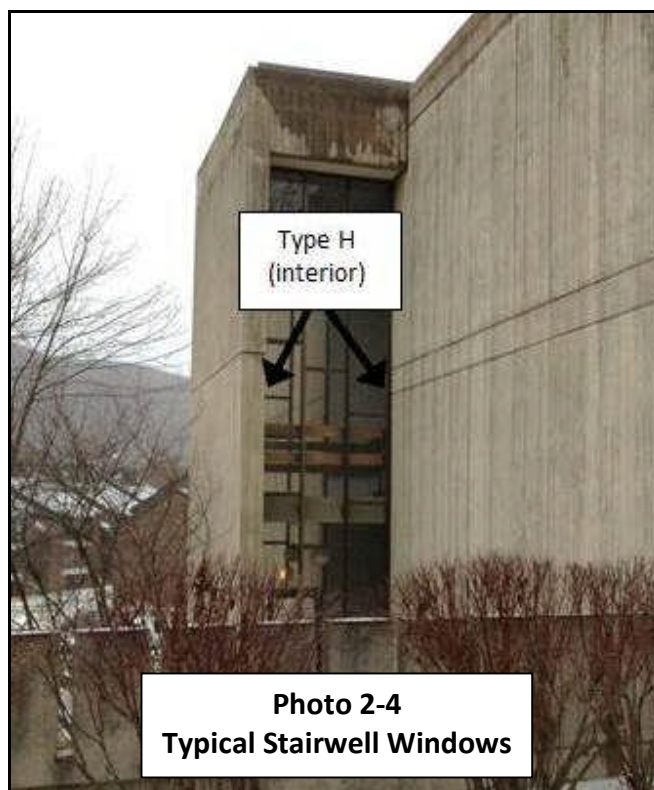
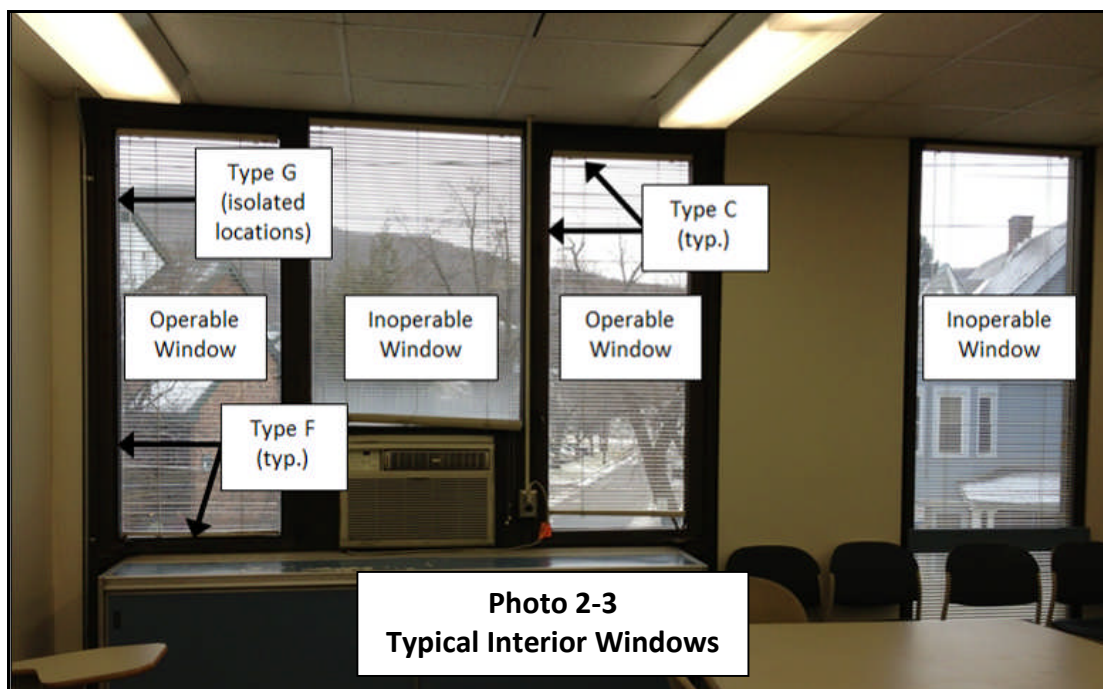
2.4 CHARACTERIZATION RESULTS – INTERIOR LOCATIONS

2.4.1 Interior Window Caulking

Woodard & Curran visually surveyed and sampled representative caulking and sealant samples observed at interior portions of windows. Four different types of interior caulking or sealants were observed at the building's windows and seven individual caulking samples were submitted for analysis. The sampled materials are summarized below with laboratory results presented on Table 2-1. Laboratory analytical reports are provided in Appendix B.

- **Type C** – observed at interior metal window frame to glass pane joints at operable windows only; a total of 83 operable windows are present at the building. Two samples were collected from Type C sealant and were reported with PCB concentrations of 8.42 and 20.3 ppm.
- **Type F** – observed at interior metal to metal joints integral to the window assembly at operable windows only; a total of 83 operable windows are present at the building. Two samples were collected from Type F sealant and were reported with PCB concentrations of 26 and 181 ppm. Similar material collected by Covino in August 2012 had a reported PCB concentration of 51.7 ppm.
- **Type G over Type F** – observed at isolated locations (apparent repair sealant) over joints where Type F caulking was typically present. One sample was collected and reported with a PCB concentration of 48.0 ppm.
- **Type H** – observed at interior metal window frame to adjacent drywall joints along vertical lengths of north and south stairwell curtain window walls. One sample was collected and reported with a PCB concentration of 134.2 ppm.

In summary, two of the four types of interior sealants were reported with PCBs ≥ 50 ppm, the Federal regulatory threshold for a PCB bulk product waste. Photographs showing typical interior windows at Bowman Hall are provided below. As noted previously, no caulking was observed along the perimeter of the windows (frame to drywall joint) at any of the windows with the exception of the stairwell windows (Type H sealant).



2.4.2 Interior Ductwork Sealant

Woodard & Curran visually surveyed and sampled representative sealants observed at interior ductwork. An estimated quantity of 2,240 linear feet (l.f.) of ductwork is present and is scheduled to be removed throughout the

building. Three visually distinct types of ductwork seam sealants were observed within the project work area. The predominant caulking type, a reddish-brown sealant identified as Type K, is present on approximately 75% of the ductwork (i.e., 1,680 l.f. of ductwork). Two less predominant types, a light gray sealant (Type I) and a dark gray sealant (Type J) are present on the remaining ductwork (i.e., approximately 560 l.f. of ductwork). Six individual sealant samples were collected and submitted for analysis. The sampled materials are summarized below with laboratory results presented on Table 2-1. Laboratory analytical reports are provided in Appendix B.

- **Type I** – a light gray/white ductwork seam sealant observed at portions of the third floor ductwork. Two samples were collected and reported with PCB concentrations of 10.1 and 25.9 ppm.
- **Type J** – a dark gray ductwork seam sealant observed at portions of the second and third floor ductwork. One sample was collected and reported with PCB concentrations of 29.6 ppm.
- **Type K** – a reddish-brown ductwork seam sealant observed on the basement, first, and third floors. Three samples were collected and reported with PCB concentrations of 80, 178, and 236 ppm.

In summary, the reddish-brown Type K ductwork seam sealant was reported with PCBs ≥ 50 ppm in all three samples, the Federal regulatory threshold for a PCB bulk product waste. As such, this sealant type is considered to contain PCBs at concentrations ≥ 50 ppm for the purposes of this Remediation Plan. Refer to Section 3.3.4 for additional details regarding the characterization of this ductwork prior to removal.

The two sealant types reported with PCBs < 50 ppm (Type I and Type J) have been determined to meet the definition of Excluded PCB Products as defined at 40 CFR 761.3 due to information provided by the owner that the ductwork was installed at the time of the original building construction in 1970.

2.4.3 Interior Adjacent Drywall

On August 1, 2013, Woodard & Curran collected bulk samples from interior drywall adjacent to the stairwell windows to determine the level of PCBs that may have migrated to adjacent materials. Given the release mechanism, drywall in direct contact with the caulking was assumed to contain detectable concentrations of PCBs, and drywall not in direct contact with the caulking would likely contain levels of PCBs that decrease with increasing distance from the caulking joints. A total of two drywall samples were collected and submitted for laboratory analysis. The results of the adjacent material samples are summarized as follows:

- **Type H Stairwell Window Joint (PCBs in caulking reported at 134.2 ppm)**
 - Drywall beside vertical window joint: PCBs reported at 9.2 ppm at a distance of 0 to 1 inches above the joint; PCBs reported at 0.26 ppm at a distance of 6 to 7 inches from the joint.

In summary, at the tested locations, PCBs appear to have decreased to levels below 1 ppm within the first six inches away from the caulked joint.

2.5 DATA USABILITY ASSESSMENT

A data quality assessment performed by Woodard & Curran included a review of sample collection and preservation methods, field duplicate and field blank results, sample holding times, laboratory documentation, a review of the internal laboratory QA/QC procedures and results including surrogate recoveries, blank results, and laboratory control standard results. The assessment indicated that the data was deemed usable for its intended purposes (i.e., characterization and material profiling), and no qualifications were applied to the data.

3. REMEDIATION PLAN

This plan has been developed for the remediation of PCB-affected materials that will be disturbed during upcoming renovation work scheduled to be conducted at Bowman Hall. A general overview of the proposed remedial activities is presented in Section 3.1, and a detailed description of the approach for each of the areas is presented in subsequent sections.

3.1 REMEDIATION OVERVIEW

The remediation plan proposed herein is a risk-based request prepared in accordance with 40 CFR Part 761.61(c). All caulking and glazing sealants, window components, portions of ductwork, and drywall containing PCBs > 1 ppm will be removed for off-site disposal as ≥ 50 ppm PCB waste. The majority of the PCB impacted exterior concrete will remain in-place subject to usage restrictions and/or will be encapsulated with a protective coating; limited quantities of exterior concrete will be removed to accommodate new exterior feature installations. The overall sequence of remediation activities will include the following:

- Remove and dispose of interior and exterior caulking within the project work area as ≥ 50 ppm PCB waste (including window sealants reported with PCBs < 50 ppm, which are co-located with other PCB ≥ 50 ppm sealants; sealants determined to meet the definition of Excluded PCB projects may be segregated and managed for off-site disposal at as-found concentrations);
- Remove and dispose of entire window units, including metal window frames, glass panes, and hardware in direct contact or coated with ≥ 50 ppm PCB caulking as ≥ 50 ppm PCB waste;
- Implement a cut-line and waste segregation approach to remove portions of interior drywall in contact with ≥ 50 ppm PCB caulking as ≥ 50 ppm PCB waste; PCB concentrations in remaining drywall to be verified by sampling and disposed of accordingly;
- Implement a cut-line and waste segregation approach to remove sections of interior ductwork in contact with ≥ 50 ppm PCB sealant as ≥ 50 ppm PCB waste; PCB concentrations in sections of ductwork beyond cut lines to be verified by sampling and disposed or recycled accordingly;
- Characterize and remove limited quantities of exterior concrete to accommodate new exterior feature installations;
- Encapsulate remaining exterior concrete in direct contact with caulking (within joint returns) with a liquid epoxy;
- Encapsulate remaining exterior concrete not in direct contact with caulking (panels, columns, and spandrels) with a clear acrylic sealer at locations with PCBs greater than and subject to the applicable occupancy and use cleanup criteria;
- Implement institutional controls to restrict exterior concrete not in direct contact with caulking (panels, columns, and spandrels) to low-occupancy usage at locations with PCBs less than and subject to the low-occupancy cleanup criteria
- Install replacement caulking within encapsulated joints;
- Implement long term maintenance and monitoring of the encapsulated areas; and,
- Record a deed notice to document the PCB concentrations remaining on the building and the long-term maintenance and monitoring requirements.

The high occupancy and low occupancy clean up criteria are proposed to apply to Bowman Hall as follows:

- *High Occupancy Cleanup Criteria:* The high occupancy cleanup criteria of ≤ 1 ppm total PCBs will be applied to exterior concrete within 9.5 feet of the ground surface, as these locations are potentially accessible for direct contact exposures. This criteria would apply to the entire first floor level on the east, west, north, and south elevations; this criteria would also apply to portions of the second floor on the east elevation due to the sloped ground surface. Approximately 7,000 square feet of concrete is subject to the high occupancy cleanup criteria.
- *Low Occupancy Cleanup Criteria:* The low occupancy cleanup criteria of ≤ 25 ppm total PCBs will be applied to exterior concrete at heights greater than 9.5 feet above ground surface, as these locations have limited accessibility and limited potential for direct contact exposures (no balconies or other building access points). This criteria would apply to the entire second and third floors on the west, north, and south elevations; this criteria would also apply to portions of the second floor and all of the third floor on the east elevation due to the sloped ground surface. Approximately 10,300 square feet of concrete is subject to the low occupancy cleanup criteria.

The following sections of this plan provide details on the proposed site preparations and controls, verification sampling plans, waste storage and disposal, site restoration, and recordkeeping requirements. Unless otherwise specified, sample collection methods and laboratory analysis of samples collected to verify the remediation activities presented herein will be consistent with the methods presented in Section 2 of this Plan.

3.2 SITE PREPARATION AND CONTROLS

Prior to initiating any of the exterior remediation activities, the following controls will be implemented:

- A Health & Safety Plan will be developed for the specific work activities to be conducted. Workers will follow applicable Federal and State regulations regarding the work activities, including but not limited to OSHA regulations, fall protection standards, respiratory protection, ladder/scaffolding safety, personal protective equipment, etc.
- Additional notifications and plans required for the work activities will also be prepared and submitted for approval, as needed.
- Access to the active work areas will be restricted by fencing and signage with controlled access points.
- Prior to initiation and periodically during the work activities, project-related communications with building tenants, employees, and contractors will be undertaken on an as needed basis. These communications may include schedule updates regarding disruption to particular areas, restrictions on exterior door use, or significant project updates.
- Caulking, drywall, ductwork, and concrete removal areas will be contained using polyethylene sheeting or equivalent to control any blowing dust or debris generated from the activities. Wet wiping and water misting will be used as a dust suppressant as appropriate. No grinding or saw-cutting will be used for the caulking removal.
- Ground cover (polyethylene sheeting or equivalent) will be placed along the building walls and on interior floors to serve as containment for building materials removed during remediation work. Any debris collected within the polyethylene containment areas or on ground cover sheeting will be gathered and placed in the

appropriate containers at the end of each work day. After use, disposable PPE and poly sheeting used to collect debris will be placed in the appropriate containers for disposal as PCB remediation waste.

- Certain sealants have tested positive for asbestos as well as PCBs. Site controls established for the removal of these sealants will be established as required for asbestos abatement activities.

3.3 BULK PRODUCT WASTE REMOVAL

3.3.1 Exterior Expansion Joint Caulking

Approximately 2,480 l.f. of expansion joint caulking is present at exterior concrete to concrete joints on the east and west elevations only (e.g., at vertical joints between panels and columns, or horizontal joints between panels and slabs). All exterior expansion joint caulking has been identified as Type A caulking as shown in Photo 2-1 above. The caulking has been reported with PCBs ranging from 563 to 30,400 ppm. All exterior expansion joint caulking will be removed and disposed of offsite as ≥ 50 ppm PCB bulk product waste upon removal. The details of this task are outlined below.

- Exterior caulking will be removed using hand tools (e.g. caulking removal guns or scrapers) to achieve caulking removal to the maximum extent practicable while minimizing dust or other airborne particulates generated from caulking or adjacent building materials.
- Upon the completion of the initial removal activities, the joints will be visually inspected for the presence of any residual caulking. If residual caulking is observed, it will be removed from the adjacent material to the maximum extent practicable.
- Wet wiping and/or vacuuming of all tools and equipment in the work area will be performed at the completion of the work activity.
- Any debris collected within the polyethylene containment areas or on ground cover sheeting will be gathered and placed in the appropriate containers at the end of each work day. After use, disposable PPE and poly sheeting used to collect debris will be placed in the appropriate containers for disposal as PCB remediation waste.
- All removed caulking and associated debris will be transported for off-site disposal in accordance with 40 CFR 761 Subpart D requirements (refer to Section 3.5).

Prior to new expansion joint caulking installation, the concrete in former direct contact with the caulking will be encapsulated as described in Section 3.4 below.

3.3.2 Typical Windows

During the initial investigations, PCBs were detected at concentrations ≥ 50 ppm in certain interior and exterior caulking and glazing sealants associated with the typical building windows depicted in Photos 2-1 and 2-3. Certain interior sealants were also reported with PCBs at concentrations < 50 ppm. Because the windows will be removed in their entirety for off-site disposal (i.e., no waste segregation will be performed), all caulking and glazing sealants associated with these windows will be removed and disposed of offsite as ≥ 50 ppm PCB bulk product waste upon removal. The details of this task are outlined below:

- All window components, including metal frames and glass panes which are coated or in direct contact with caulking and glazing sealants, will be removed collectively with the caulking and glazing sealants for off-site disposal as PCB waste ≥ 50 ppm.
- Upon completion of the initial removal activities, the window openings will be visually inspected for the presence of any residual caulking at the exterior concrete joint returns. If residual caulking is observed, it will be removed from the concrete to the maximum extent practical.
- Wet wiping and/or vacuuming of all tools and equipment in the work area will be performed at the completion of the work activity.
- Any debris collected within the polyethylene containment areas or on ground cover sheeting will be gathered and placed in the appropriate containers at the end of each work day. After use, disposable PPE and poly sheeting used to collect debris will be placed in the appropriate containers for disposal as PCB remediation waste.
- All removed caulking, glazing sealants, window frame components and associated debris will be transported for off-site disposal in accordance with 40 CFR 761 Subpart D requirements (refer to Section 3.5).

Approximately 3,670 l.f. of exterior window caulking will be removed from joints in direct contact with exterior concrete. Prior to new window installation, the concrete in former direct contact with the caulking will be encapsulated as described in Section 3.4 below.

3.3.3 Stairwell Windows

During the initial site investigations, PCBs were detected at concentrations ≥ 50 ppm in certain interior and exterior caulking and glazing sealants associated with four columns of windows in two stairwells as depicted in Photo 2-4. The windows, caulking, glazing sealants, and attached / coated drywall (see below) will be removed for off-site disposal as ≥ 50 ppm PCB bulk product waste upon removal. Drywall materials in direct contact with the former interior window caulking will be removed following a cut-line segregation approach to segregate PCB impacted materials for off-site disposal; removal areas will be determined through pre- and post-removal sampling. The details of this task are outlined below:

- All window components, including metal frames and glass panes which are coated or in direct contact with caulking and glazing sealants, will be removed collectively with the caulking and glazing sealants for off-site disposal as PCB waste ≥ 50 ppm.
- Upon completion of the initial removal activities, the window openings will be visually inspected for the presence of any residual caulking at the exterior concrete joint returns. If residual caulking is observed, it will be removed from the concrete to the maximum extent practical.
- Interior drywall within pre-determined cut lines (assumed to be within 6 inches from the caulked joint) will be removed for offsite disposal collectively with the interior caulking and metal window frames. Results of initial adjacent materials sampling indicate that PCBs were reported below EPA's unrestricted use cleanup level of 1 ppm at a distance of 6 inches from the joint (1 sample location). Additional drywall samples will be collected to confirm the cut-line prior to remediation as follows:
 - An approximate quantity of 260 l.f. of caulking is present in direct contact with interior drywall (4 windows; 65 l.f. per window; 32.5 l.f. per vertical joint).

- Seven additional samples will be collected to verify the proposed cut line of 6 inches from the joint (1 sample per vertical joint or 1 sample per 32.5 l.f. of caulking). The proposed sampling frequency represents a variance from the Subpart O verification requirements. This variance is proposed under 40 CFR 761.61(c), as the sampling frequency presented herein will provide a reasonable and adequate representation of each joint at all stairwell windows subject to remediation.
- If any samples collected at 6 inches from the joint are reported with PCBs > 1 ppm, samples will be collected at a more distant interval to delineate the extent of PCBs to the 1 ppm cleanup level and any additional drywall beyond the 6-inch cut-line will be removed and disposed with the caulking and drywall as ≥ 50 ppm PCB waste.
- Wet wiping and/or vacuuming of all tools and equipment in the work area will be performed at the completion of the work activity.
- Any debris collected within the polyethylene containment areas or on ground cover sheeting will be gathered and placed in the appropriate containers at the end of each work day. After use, disposable PPE and poly sheeting used to collect debris will be placed in the appropriate containers for disposal as PCB remediation waste.
- All removed caulking, glazing sealants, window frame components, drywall and associated debris will be transported for off-site disposal in accordance with 40 CFR 761 Subpart D requirements (refer to Section 3.5).
- The drywall beyond the cut-line (i.e., verified to be < 1 ppm PCBs) will be managed in accordance with the overall project plans.

Prior to new window installation, the concrete in former direct contact with the caulking will be encapsulated as described in Section 3.4 below.

3.3.4 Ductwork

Approximately 1,680 l.f. of ductwork with the Type K reddish-brown sealant containing PCBs ≥ 50 ppm is estimated to be present within the building. The dimensions of the ductwork vary, but on average measure approximately 16" x 24", and seams are sealed with Type K sealant at an approximate frequency of one joint per 4 l.f. of ductwork on the major horizontal runs. Based on these assumptions, there are an estimated 420 ductwork seams sealed with 2,800 l.f. of Type K sealant (however, the exact number of seams and linear feet of seam sealant cannot be determined until the ductwork is exposed during the selective demolition stage of the project). The sealant has been reported with PCBs ranging from 80 to 236 ppm, and has also tested positive for asbestos. Given the presence of both PCBs and asbestos in the caulking, the sealant will *not* be removed from the ductwork; the remedial approach will consist of a cut-line and segregation approach by physically cutting the sections of ductwork with sealant from sections of ductwork without sealant. The details and sequence of this approach are outlined below.

- Prior to removing or cutting any of the ductwork (with the exception of potentially "dropping" the ductwork to the floor to provide access), surface wipe samples will be collected from the sections of ductwork which are *not* coated with the sealant in accordance with Subpart N characterization methods under 40 CFR 761.267(a). Samples will be collected in accordance with the standard wipe test as defined at 40 CFR 761.3 from the surface of the ductwork within a prescribed sampling area. Based on the estimated quantity and dimensions of the ductwork, the proposed sample frequency will result in approximately 26 initial wipe samples. Supporting calculations for this sample frequency are provided in Appendix C.

- Surface wipe sample results will be evaluated as follows:
 - If sample results are below the unrestricted use cleanup level of 10 ug/100cm², the sections of ductwork represented by this sample will be managed for off-site disposal or recycling in accordance with the overall project plans (without restrictions for PCBs);
 - If sample results are above the unrestricted use cleanup level of 10 ug/100cm², the sections of ductwork represented by this sample will be designated for additional physical removal by implementing a more distant cut line until cleanup levels are met as demonstrated by additional sampling; or, the materials may be disposed of as ≥ 50 ppm PCB waste and asbestos without additional verification.
- After completing the sampling program described above to confirm cut lines, sections of ductwork will be removed from the ceiling and placed within an established staging area on the floor. The floor will be protected with appropriate site controls as outlined in Section 3.2 and as required by the presence of asbestos in the sealant.
- At each seam sealed with the asbestos / PCB ≥ 50 ppm sealant, the sealant will *not* be removed from the ductwork. The ductwork will be physically cut at the predetermined cut line (assumed to be approximately 6 inches from the sealant) such that the portion of ductwork which is coated with the sealant is physically separated from the larger sections of ductwork which are not coated with the sealant.
- If any sections of ductwork between adjacent seams are small enough that a cut-line and segregation approach is determined to be infeasible, these sections of ductwork would be removed in their entirety as asbestos and PCB ≥ 50 ppm waste without implementing a cut-line and segregation approach.
- Wet wiping and/or vacuuming of all tools and equipment in the work area will be performed at the completion of the work activity.
- Any debris collected within the polyethylene containment areas or on ground cover sheeting will be gathered and placed in the appropriate containers at the end of each work day. After use, disposable PPE and poly sheeting used to collect debris will be placed in the appropriate containers for disposal as PCB waste.
- All removed sealant and associated debris will be transported for off-site disposal in accordance with 40 CFR 761 Subpart D requirements (refer to Section 3.5).

3.3.5 Excluded PCB Product Removal

The two types of ductwork sealant and exterior roof penthouse door frame caulking reported with PCBs < 50 ppm have been determined to meet the definition of Excluded PCB Products. Due to the presence of PCBs in these materials, the removal of the caulking / sealant at these locations will be performed under site controls described in Section 3.2, and will be managed for disposal at a facility that can accept this material at the at found concentrations.

3.4 EXTERIOR CONCRETE REMEDIAL APPROACH

As presented in Section 2.3, the initial concrete data collected from the building indicates that PCBs have migrated from the exterior window joint and expansion joint caulking into adjacent concrete. Samples collected from the accessible concrete surface at a distance of 0 to 1 inches from the joint were reported with PCBs ranging from 0.23

to 1.94 ppm. Based on these results, it has been assumed that concrete within the joint in direct contact with caulking (not currently accessible) contains PCBs above the unrestricted use cleanup level of 1 ppm.

The majority of the PCB impacted exterior concrete will remain in-place subject to usage restrictions and/or will be encapsulated with a protective coating. Limited quantities of exterior concrete will be removed as described below.

3.4.1 Limited Concrete Removal

Limited quantities of exterior concrete will be removed from at least three locations to accommodate new exterior feature installations as summarized below:

- The concrete panels above the east elevation main entrance will be removed in order to install new larger windows at this location (see photo). Approximately 270 square feet of concrete will be removed.
- A portion of the concrete foundation wall on the west elevation will be removed in order to install a louver to vent equipment located in a basement mechanical room. Approximately 70 square feet of concrete (some of which is currently subgrade) will be removed.
- The concrete sidewalk pads located in front of the existing building entrance will also be removed as part of the scheduled renovation work (see photo).



It is estimated that a total of 12 tons of concrete will be removed for off-site disposal from these three locations.

Prior to removing these sections of concrete, all caulking will be removed and disposed of as ≥ 50 ppm PCB waste, as described above. Following caulking removal, characterization samples will be collected from the concrete in direct contact with caulking for waste classification purposes. On the east elevation above the main entrance, one sample will be collected from concrete at a Type A caulking joint, and one sample will be collected from concrete at a Type B caulking joint. On the west elevation at the foundation wall removal area, one sample will be collected from concrete at a Type A caulking joint only (no windows with Type B caulking are present at this location). If the results of these concrete samples are reported with PCBs < 50 ppm, the removed concrete will be managed for off-site disposal as PCB < 50 ppm waste (it is currently assumed that the material will be managed as PCB < 50 ppm waste based on the existing data set). If the results of these concrete samples are reported with PCBs ≥ 50 ppm, the removed concrete will be managed for off-site disposal as PCB ≥ 50 ppm waste. As renovation plans have not yet been finalized, any other limited concrete removal areas added to the scope of work will be characterized and managed in a manner consistent with the approach described herein.

The concrete sidewalk pads located in front of the existing building entrance shown in Photo 3-1 will also be removed as part of the scheduled renovation work. Caulking present at the joint between the vertical building wall and the horizontal concrete pad surface (approx. 30 l.f.), as well as between adjacent concrete pads (3 joints at approx. 15 l.f.

each), appears visually similar to caulking present within expansion joints on the building and is assumed to contain PCBs ≥ 50 ppm.

After caulking removal as described in Section 3.3.1, the concrete sidewalk pads will be removed by implementing a “cut-line” and waste segregation approach. As presented in Section 2.3.2, two initial concrete samples were reported with PCBs as non-detect (< 0.095 ppm) and at 0.90 ppm at a distance of 0 to 1 inches from the joint. To confirm a cut line, an additional 3 samples will be collected from the same interval for a total of 5 samples from the 45 l.f. of caulking. If the results of the 3 additional samples are reported with PCBs ≤ 1 ppm, the minimum cut line will be established at a distance of 1 inch from the caulking, and concrete within this interval will be managed for off-site disposal with the caulking. If any samples are reported with PCBs > 1 ppm, a more distant sample will be collected until a cut line is established where concrete beyond the line is confirmed to contain PCBs ≤ 1 ppm. Portions of the concrete pads located beyond the established cut line will be managed without restrictions for PCBs in accordance with the overall project plans.

After removal of the concrete sidewalk pads, bulk verification samples will be collected from underlying materials (soil) beneath the former caulked joints to confirm that materials remaining in place meet the 1 ppm cleanup level. Samples will be collected from the same 5 locations as the concrete samples described above. If the results of the samples are reported with PCBs ≤ 1 ppm, no further action will be taken. If any samples are reported with PCBs > 1 ppm, the material represented by that sample will be managed for off-site disposal with the caulking, and additional verification samples will be collected until remaining materials are confirmed to contain PCBs ≤ 1 ppm.

3.4.2 In-Place Management via Encapsulation

The scope of the renovation project includes the removal of all PCB source materials (caulking and sealants) as described in Section 3.3 above. However, most exterior concrete is scheduled to remain in place, with limited exceptions as described above. Extensive physical removal of concrete in direct contact with or adjacent to the caulking is infeasible for several reasons summarized as follows:

- Structural – many caulked joints are in contact with concrete components that are essential to the structural integrity of the building. Extensive concrete removal would compromise the building’s structural integrity.
- Waterproofing – given the current size of the building expansion joints (up to 1 inch in width), and assuming that at least 1 additional inch of concrete on either side of each joint would require removal to achieve a 1 ppm cleanup level, concrete removal would increase joint sizes to at least 3 inches in width. Concrete repairs to narrow the joints would create an increased potential for water intrusion, which is counter to the original intent of the building renovation project.
- Aesthetics – the entire building is constructed of cast in place concrete and pre-cast concrete panels. The façade is in generally good condition; the façade does not currently exhibit extensive damage (cracks or spalling), and does not have extensive areas of discoloration or visible repairs. Given the high frequency of joints and the amount of concrete that would require patching and repairs if a concrete removal approach were implemented, the building aesthetics would be drastically altered in a removal scenario.
- Incremental Cost for Risk Reduction Benefit – the incremental costs that would be incurred to achieve a 1 ppm unrestricted use cleanup level (via concrete removal) are disproportionate to the overall project cost of the façade repair and window replacement project. The incremental costs would be driven by the anticipated duration of the work and cost of labor; cost of additional material disposal; and cost of concrete restoration and repairs. These incremental costs are considered to be substantial and disproportionate to the incremental benefit of risk reduction gained via concrete removal.

Based on the results of the evaluation presented above, a risk-based remedial approach has been developed for the exterior concrete. The proposed remedial approach for exterior concrete includes either the application of a liquid coating or sealant to prevent direct contact exposures to and migration of PCBs, or occupancy restrictions based on the differing potential for direct contact exposures at different exterior elevations. The on-site encapsulation of residual PCBs is an interim solution designed to shield impacted building materials from the effects of weathering and leaching mechanisms, thereby eliminating potential exposure pathways and mitigating the potential for PCB transfer via direct contact and/or leaching to adjacent media. Accordingly, there will be no resultant exposure to PCBs in the contained concrete, resulting in conditions protective of human health and the environment.

This approach is considered to be an interim measure. Proper disposal of the PCB remediation waste remaining on the building will be required upon removal of the material or at the time of building demolition.

3.4.2.1 Concrete Sample Collection and Analyses

As of the date of this Plan, one bulk concrete sample has been collected from each exterior joint configuration for a total of six exterior concrete samples: concrete above, below, and beside window joints, and, concrete above, below, and beside concrete expansion joints. PCBs were only reported at concentrations > 1 ppm in one sample collected from a concrete spandrel above a horizontal concrete expansion joint. The remaining five samples collected from the other five joint configurations were reported with PCBs ≤ 1 ppm.

In order to confirm the conceptual site model established by this initial data set and adequately characterize the concrete in order to assess the cleanup criteria and associated remedial actions, a total of 40 additional samples will be collected from the different joint configurations as indicated below.

Caulking Type	Total PCBs	Occupancy	Quantity (l.f.)	Sample Frequency	Number of Samples
Type A Expansion Joint Caulking (2,480 l.f.)	563 to 30,400 ppm	High ¹	825	1 per 100 l.f.	8
		Low	1,655	1 per 200 l.f.	8
Type B Typical Window Caulking (3,670 l.f.)	2,500 to 40,900 ppm	High ¹	1,200	1 per 100 l.f.	12
		Low	2,470	1 per 200 l.f.	12

1 = As described previously, the high occupancy cleanup criteria will be applied to exterior concrete within 9.5 feet of the ground surface, as these locations are potentially accessible for direct contact exposures. Given this area is an exterior concrete facade of a classroom and office building with no continued occupancy, this occupancy level is considered conservative in regard to the 40 CFR 761 definition.

Given the frequency of collection, these samples will be collected once the Contractor has mobilized to the building for the project with staging, aerial lifts, or other access methods to the building façade. Samples will be collected from the concrete façade at locations immediately adjacent to the former caulked joint (i.e., the 0 to 1 inch interval).

Although the data collected to date indicates that encapsulation may not be warranted for all concrete surfaces not in direct contact with caulking based on concentrations meeting the 1 ppm high occupancy cleanup criteria, the Owner is prepared to encapsulate all high occupancy surfaces due either to: (a) potential future data points indicating PCBs > 1 ppm in the larger data set; or, (b) Owner preference to encapsulate a complete surface (instead of partial surfaces) for aesthetic reasons. However, if the additional samples proposed herein continue to demonstrate that

PCBs meet the 1 ppm high occupancy cleanup criteria at certain joint types, the encapsulation and/or occupancy restrictions presented herein may not be warranted.

3.4.2.2 Concrete Encapsulation

The majority of the exterior building concrete is scheduled to remain in place. The exterior concrete will be managed by encapsulation or by imposing occupancy restrictions, as follows:

- Concrete in direct contact with caulking (within the joint returns) will be encapsulated with a liquid epoxy (e.g., Devcon 5 Minute Epoxy, or equivalent). This approach will be implemented at all exterior joints, regardless of the building floor or elevation, in order to prevent potential cross-contamination from concrete into the new caulking that will be used to restore the joints.
- Concrete not in direct contact with caulking (façade panels, columns, and spandrels) will be encapsulated with a clear acrylic coating or sealer (e.g., Sikagard 670W, or equivalent) at locations subject to the high-occupancy cleanup criteria, provided the sample results exceed the 1 ppm level (specific areas of encapsulation were discussed above); if below 1 ppm, then the concrete would not be encapsulated.
- Concrete not in direct contact with caulking (façade panels, columns, and spandrels) at locations subject to the low-occupancy cleanup criteria will not be encapsulated, but rather will be restricted to low-occupancy usage, provided the sample results meet the low occupancy use criteria of 25 ppm.

The approach outlined above will result in the encapsulation of approximately 6,150 l.f. of concrete joints (2,480 l.f. of joints with Type A caulking and 3,670 l.f. of joints with Type B caulking). Approximately 7,000 square feet of concrete is subject to the high occupancy cleanup criteria (assumes all exterior concrete within 9.5 feet of ground surface) and may be coated with a clear acrylic sealer depending on the concrete sample results. Approximately 10,300 square feet of concrete is subject to the low occupancy cleanup criteria (assumes all exterior concrete at heights greater than 9.5 feet above ground surface) and will be restricted to low-occupancy usage depending on the concrete sample results.

Specifications for the proposed encapsulation products are provided in Appendix D.

3.4.2.3 Verification Wipe Sampling

Verification surface wipe samples will be collected from encapsulated surfaces at the frequencies proposed below:

- Epoxy-encapsulated surfaces (concrete in direct contact with caulking, within the joint returns) will be sampled at a frequency of one or two wipe samples per façade (where present) per the two different joint types, biased toward joint locations accessible from ground surface within high occupancy areas, as follows:
 - Type A - present on 2 facades (east and west) - 2 wipe samples per façade = 4 samples
 - Type B - present on all 4 facades - 1 wipe sample per façade = 4 samples
- Clear-coat encapsulated surfaces (concrete not in direct contact with caulking at façade panels, columns, and spandrels) will be sampled at a frequency of one or two wipe samples per façade (where present), biased toward locations accessible from ground surface within high occupancy areas, as follows:
 - East and west facades (longer sides of the building) - 2 wipe samples per façade = 4 samples
 - North and south facades (shorter ends of the building) - 1 wipe sample per façade = 2 samples

The actual number of samples collected will vary depending on the results of the concrete sample results (as described above), which will dictate whether a surface warrants encapsulation. The proposed sampling frequencies represent a variance from the Subpart O verification requirements. This variance is proposed under 40 CFR 761.61(c), as the sampling frequency presented herein will provide a reasonable and adequate representation of each surface subject to remediation.

Analytical results from the encapsulated surface wipe samples will be evaluated in comparison to a 1 µg/100 cm² target action level to determine whether or not this task is complete. If the target action level is met, the task will be considered complete; if the target action level is not met, an additional surface coating may be applied, depending on coating areas and amounts of coats compared to the product specifications and a follow-up surface wipe sample will be collected at an off-set location.

3.5 STORAGE AND DISPOSAL

The following PCB wastes will be managed as a single waste stream and designated as ≥ 50 ppm PCBs:

- Window and masonry caulking and glazing sealants;
- Metal window frames, panes and associated hardware;
- Ductwork seam sealants within the established cut-line
- Interior drywall within established cut-lines;
- Exterior concrete, where scheduled for removal within renovation project scope (*if characterization data indicates PCBs are present in concrete at concentrations ≥ 50 ppm*).

The following PCB wastes will be managed as a single waste stream and designated as < 50 ppm PCB Remediation Waste:

- Exterior concrete, where scheduled for removal within renovation project scope (*if characterization data indicates PCBs are present in concrete at concentrations < 50 ppm*).
- Polyethylene sheeting, PPE, and non-liquid cleaning materials.

The following activities will be completed with regard to the proper storage and disposal of PCB wastes:

- Secure, lined, and covered waste containers (roll-off containers or equivalent), 55-gallon DOT-approved steel containers, or cubic yard boxes/totes will be staged for the collection of PCB wastes generated during the work activities in accordance with 40 CFR 761.65;
- Containers will be properly labeled and marked in accordance with 40 CFR 761.40;
- Upon completion of the work or when a container is considered full, PCB ≥ 50 ppm waste will be transported under hazardous waste manifest for off-site disposal at a TSCA approved waste disposal facility (e.g., the Chemical Waste Management facility in Model City, New York, or equivalent). PCB waste < 50 ppm will be transported to Waste Management's Turnkey Recycling and Environmental Enterprises (TREE) facility in Rochester, New Hampshire, or equivalent facility permitted to accept this type of waste.
- Copies of the waste shipment records, including manifests and certificates of disposal, will be collected and provided as part of the final report to EPA.

3.6 SITE RESTORATION

Following completion of the removal activities and verification that the cleanup levels have been met or the risk-based approach applied, the building surfaces will be restored or contained as described herein. Any exposed concrete surfaces that were disturbed for sampling or other purposes will be patched with concrete repair materials. New windows will be installed, and joints will be restored by sealing the joints with a new foam backer (as necessary) and new caulking. The site controls will be dismantled and all wastes will be transported off-site for proper disposal.

3.7 RECORDKEEPING AND DOCUMENTATION

Following completion of the work activities, records and documents per 40 CFR Part 761 will be generated and maintained at one location. A final report documenting the completion of the work activities, verification analytical results, volumes of disposed materials, and waste disposal records will be prepared and submitted to EPA. This report will also include any necessary deed notices, if required, as part of the risk-based approach.

3.8 SCHEDULE

Remediation and renovation activities are scheduled to begin in early 2014 following approval of this plan.

4. DEED RESTRICTION

Upon completion of the remediation activities described in this Plan and as required under § 761.61(a)(8)(i)(B), DCAMM shall submit to EPA a certification, signed by an approving official, that the notation on the deed has been recorded. DCAMM will submit a copy of the notation on the deed including:

- A description of the extent and levels of PCBs remaining on the building following remediation;
- A description of the PCB remedial actions completed;
- A description of the use restrictions; and,
- The long-term monitoring and maintenance requirements.

A Monitoring and Maintenance Implementation Plan (MMIP) will be prepared as described in Section 5 below.

5. CONCEPTUAL MONITORING AND MAINTENANCE PLAN

As described in this plan, some building materials are proposed to be managed in place in accordance with 40 CFR 761.61(c). This approach removes source materials and utilizes a physical barrier approach (i.e., a liquid coating) to eliminate the direct contact exposure potential and migration pathways of PCBs remaining on the building. Upon completion of the remediation activities described in this Plan, DCAMM will submit a detailed MMIP for the surface encapsulants and barriers, as applicable. A conceptual MMIP is outlined below:

- Visual inspections – visual inspections of the encapsulated surfaces will be conducted. The inspections will be recorded and included in a report to the EPA. The inspections will consist of an assessment of the following:
 - Signs of pitting, peeling, or breakages in the coating, if visible;
 - Signs of weathering or disturbance of the replacement caulking (where applied); and,
 - A general inspection of the encapsulated surfaces.
- Monitoring – surface wipe samples will be collected from the encapsulated surfaces at frequency described in the MMIP (to be based on the verification and baseline wipe samples). Wipe samples will be collected following the standard wipe test procedures or by an alternate approved method.
- Corrective Actions – if results of the inspections or monitoring indicate that corrective measures are needed, the measures will be conducted as set forth in the MMIP (e.g. follow-up sampling, additional coating applications, etc.);
- Maintenance Guidelines and Procedures – to prevent potential exposure to maintenance and facility personnel that may perform activities in the encapsulated areas, guidelines and procedures will be developed and implemented for any work being conducted in the respective encapsulated areas. These guidelines and procedures will detail communication procedures, worker protection requirements, and worker training requirements to be conducted for maintenance or other activities in these areas;
- Reporting – a report documenting the findings of the visual inspections will be prepared and submitted to EPA.

The details of the MMIP will be developed following completion of the remedial activities described herein. The results of the verification testing, baseline sampling, and inspections will be used to develop the details of the plan. The MMIP will be provided to EPA as a separate submittal following the completion of the remedial activities.

Table 2-1
PCB Caulking & Sealant Characterization Data
MCLA Bowman Hall, North Adams, Massachusetts

Sealant Type	Joint Type	Sample Location	Sample Date	Woodard & Curran Sample ID	Previous Sample ID and Result ¹	Reporting limit (mg/kg)	Total PCBs (mg/kg)
Exterior Window & Façade Joints							
Type A - off-white, flexible, intact caulking in good condition; present at east and west façade concrete expansion joints	Concrete to concrete	West façade, second bay from north, first floor lower horizontal joint	12/17/12	BH-CBK-001	"Caulk (Building)" (30,400 ppm)	1,007	8,690
		East façade, first bay south of main entrance, 2nd floor vertical joint	12/17/12	BH-CBK-006		39.9	563
Type B - dark gray, flexible, intact; some traces of off-white caulking on inner portions of joint; present at concrete to metal window joints	Concrete to metal window frame	West façade, first bay north of entrance, first floor vertical joint	12/17/12	BH-CBK-002	"Caulk (Exterior Window)" (2,500 ppm)	432	6,190
		East façade, bottom horizontal joint of stairwell windows at south end	12/17/12	BH-CBK-004		1,650	40,900
Type D - dark gray, highly elastic; present on exterior window panes	Metal window frame to glass	West façade, stained glass window panes south of entrance, first floor	12/17/12	BH-CBK-003	"Exterior Glazing (Window)" (5.8 ppm)	64	809
		East façade, third bay south of main entrance, second floor inoperable window	12/17/12	BH-CBK-005		5.94	12.2
Type E - dark gray outer surface with hard, shiny, black inner composition; present at exterior window metal to metal joints	Metal to metal window frame	East façade, first bay north of main entrance, second floor operable window	12/17/12	BH-CBK-007	N/A	5.71	28.3
		West façade, first bay north of entrance, first floor operable window vertical joint	12/17/12	BH-CBK-008		6.6	118.5
		West façade, southernmost bay, first floor operable window vertical joint	12/17/12	BH-CBK-009		6.01	14.8
Exterior Roof Joints							
Gray, soft, flexible, weathered, outer-most layer	Metal flashing to concrete	Flashing to concrete raised slab on main roof deck at southernmost end	10/15/13	BOW-CBK-137A	N/A	0.71	ND
White, soft, flexible, smooth, middle layer	Metal flashing to concrete	Flashing to concrete raised slab on main roof deck at southernmost end	10/15/13	BOW-CBK-137B	N/A	0.70	ND
Gray, soft, flexible, smooth, inner-most layer	Metal flashing to concrete	Flashing to concrete raised slab on main roof deck at southernmost end	10/15/13	BOW-CBK-137C	N/A	0.75	ND
Tan/light brown, soft, flexible with foam backing material underneath	Metal door frame to concrete	Penthouse door frame to concrete	10/15/13	BOW-CBK-142	N/A	0.68	2.5

Table 2-1
PCB Caulking & Sealant Characterization Data
MCLA Bowman Hall, North Adams, Massachusetts

Sealant Type	Joint Type	Sample Location	Sample Date	Woodard & Curran Sample ID	Previous Sample ID and Result ¹	Reporting limit (mg/kg)	Total PCBs (mg/kg)
Interior Window Joints							
Type C - black, very tacky, inelastic; present at panes of operable windows only	Metal window frame to glass	East façade, second bay from north, second floor classroom operable window	12/17/12	BH-CBK-012	N/A	6.7	8.42
		East façade, second bay from south, third floor classroom operable window	12/17/12	BH-CBK-014		4.42	20.3
Type F - dark brown, stiff, inelastic; present at metal to metal joints of operable windows only	Metal to metal window frame	East façade, second bay from north, second floor classroom operable window	12/17/12	BH-CBK-011	"Interior Window Caulk" (51.7 ppm)	3.76	26.0
		East façade, second bay from south, third floor classroom operable window	12/17/12	BH-CBK-015		6.47	181
Type G - black, tacky, potential repair sealant observed at isolated locations over Type F joints	Metal to metal window frame	West façade, second bay from north, second floor classroom operable window	12/17/12	BH-CBK-013	N/A	5.54	48.0
Type H - dark brown with grayish tint, shiny, hard; present at north & south stairwell curtain wall vertical joints	Metal window frame to drywall	Northern stairwell curtain window, second floor vertical joint	12/17/12	BH-CBK-010	N/A	3.6	134.2
Interior Ductwork Joints							
Type K - dark reddish brown, soft, flexible	Ductwork	Room 304	10/15/13	BOW-CBK-132	N/A	23	80
		Room 114	10/15/13	BOW-CBK-136	N/A	7.7	178
		Room B09	10/15/13	BOW-CBK-146	N/A	10	236
Type I - light gray/white, soft, flexible	Ductwork	Room 302	10/15/13	BOW-CBK-133	N/A	0.73	10.1
		Room 301	10/15/13	BOW-CBK-134	N/A	1.9	25.9
Type J - dark gray, soft, flexible	Ductwork	Room 210A	10/15/13	BOW-CBK-135	N/A	1.3	29.6

Notes:

1. Previous samples collected by Covino Environmental Associates in August 2012.
2. Bulk sample results reported by the analytical laboratory; mg/kg = milligrams per kilogram or parts per million (ppm)
3. Laboratory samples were extracted by Soxhlet (Method 3540C) and analyzed for PCBs by Method 8082
4. ND = not detected above laboratory minimum reporting limits, as indicated.

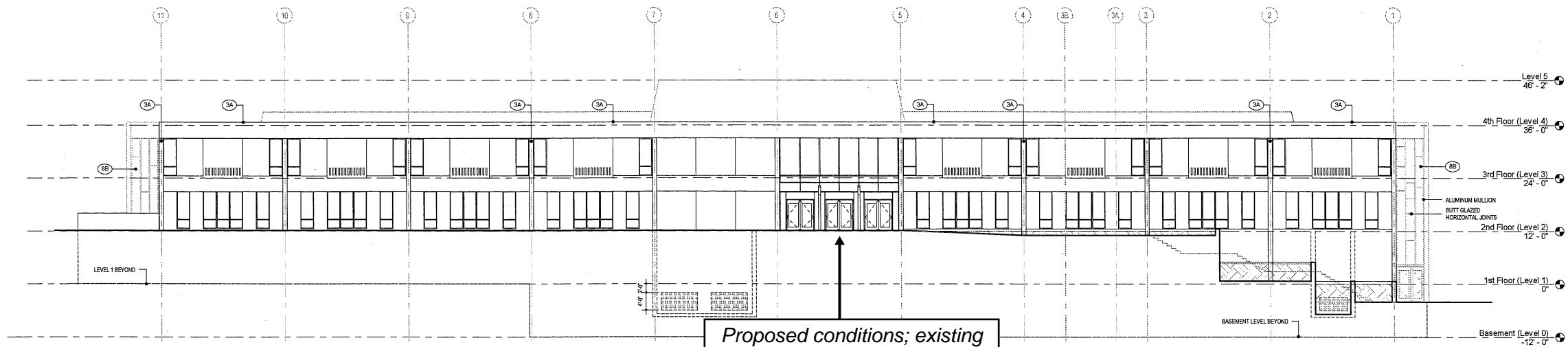
Table 2-2
Adjacent Material Characterization Data
MCLA Bowman Hall, North Adams, Massachusetts

Sealant Type	Sample Media	Distance from Joint	Sample Location	Sample Date	Woodard & Curran Sample ID	Reporting limit (mg/kg)	Total PCBs (mg/kg)
Exterior Joints							
Type A Expansion Joint caulking (563 to 30,400 ppm)	Concrete	0-1"	West façade, first floor, upper horizontal joint (spandrel)	08/01/13	BOW-CBC-100	0.08	1.94
		7-8"		08/01/13	BOW-CBC-101	0.093	ND
	Concrete	0-1"	West façade, first floor, lower horizontal joint (panel)	08/01/13	BOW-CBC-102	0.10	0.36
	Concrete	0-1"	West façade, first floor, vertical joint (panel)	08/01/13	BOW-CBC-104	0.083	0.23
	Concrete	0-1"	East façade, ground level, building wall to concrete pad at main entrance	10/15/13	BOW-CBC-121	0.095	< 0.095
	Concrete	0-1"	East façade, ground level, door threshold to concrete pad at main entrance	10/15/13	BOW-CBC-123	0.090	0.90
Type B Typical Window Caulking (2,500 to 40,900 ppm)	Concrete	0-1" before 90-deg corner	West façade, first floor, upper horiz joint (spandrel), above window	08/01/13	BOW-CBC-106	0.087	0.57
	Concrete	0-1" before 90-deg corner	East façade, first floor, lower horizontal (spandrel), below window	08/01/13	BOW-CBC-109	0.095	0.33
	Concrete	0-1" before 90-deg corner	West façade, vertical joint (panel)	08/01/13	BOW-CBC-112	0.083	0.48
Interior Joints							
Type H Stairwell Curtain Wall Caulking (134.2 ppm)	Drywall	0-1"	South-west corner, vertical joint (drywall)	08/01/13	BOW-CBC-115	1.0	9.2
		6-7"		08/01/13	BOW-CBC-116	0.09	0.26

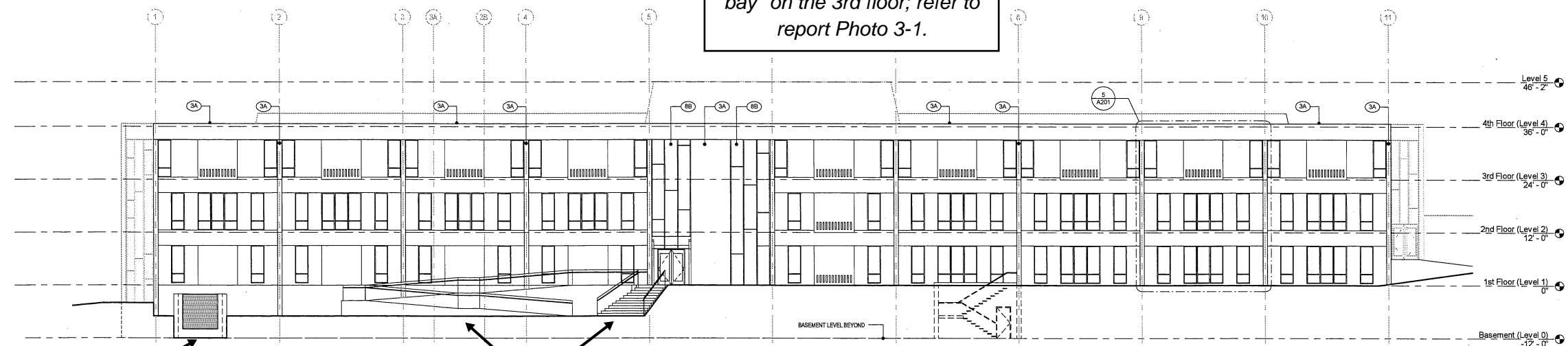
Notes:

1. Distance from Joint = "0" represents the distance at the edge of the existing caulking
2. Laboratory samples were extracted by Soxhlet (Method 3540C) and analyzed for PCBs by Method 8082 .
3. Bulk sample results are reported by the analytical laboratory in units of milligrams per kilogram (mg/kg).
4. ND = non-detect at limits indicated.

* Please note that this figure represents proposed conditions. In general, proposed conditions are similar to existing conditions, except as noted.



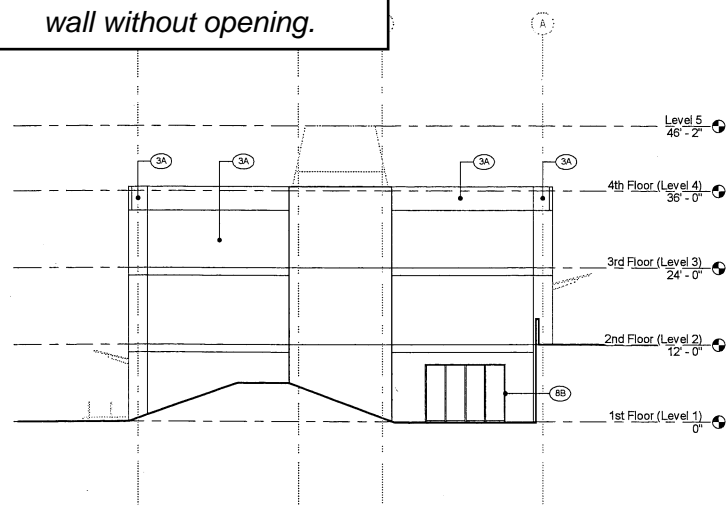
East
3/32" = 1'-0" 1



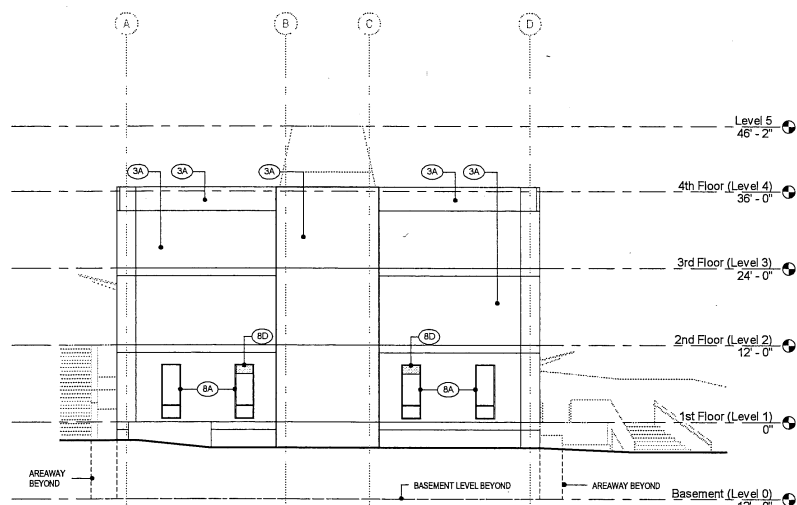
West
3/32" = 1'-0" 3

Proposed wall opening and louver; existing condition is currently a concrete foundation wall without opening.

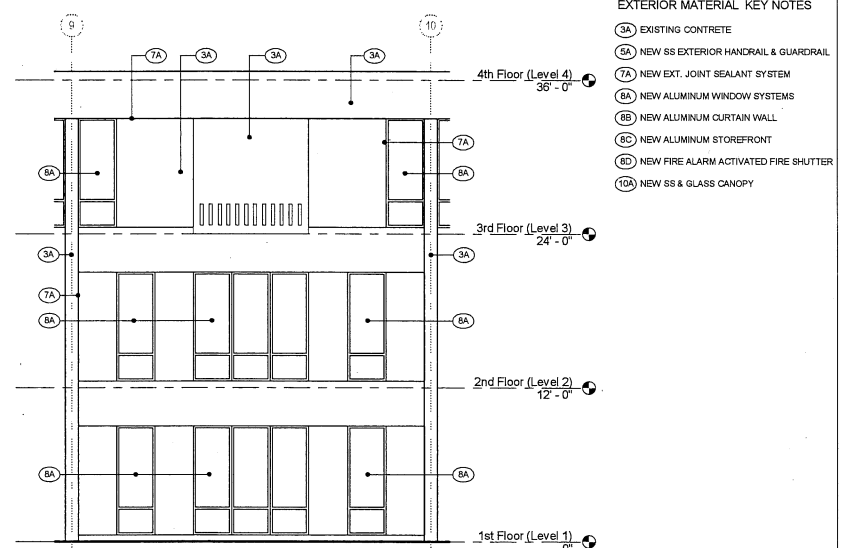
Proposed ramp and stair.



South
3/32" = 1'-0" 4



North
3/16" = 1'-0" 2



Typical Bay
3/16" = 1'-0" 5

- EXTERIOR MATERIAL KEY NOTES
- (3A) EXISTING CONCRETE
 - (5A) NEW SS EXTERIOR HANDRAIL & GUARDRAIL
 - (7A) NEW EXT. JOINT SEALANT SYSTEM
 - (8A) NEW ALUMINUM WINDOW SYSTEMS
 - (8B) NEW ALUMINUM CURTAIN WALL
 - (8C) NEW ALUMINUM STOREFRONT
 - (8D) NEW FIRE ALARM ACTIVATED FIRE SHUTTER
 - (10A) NEW SS & GLASS CANOPY

DCAM

Office of Planning
Design and Construction

McCormack Building
One Ashburton Place
Boston MA 02108
617 727 4050
www.mass.gov/cam

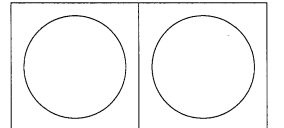
Project Name:
MCLA Bowman Hall
Renovation

DCAM Project Number
NAC1001-DC1

Project Location
Massachusetts College of
Liberal Arts
Montana Street
North Adams, MA

Project Architect
EYP/
EYP
Architecture & Engineering P.C.
Independence Wharf
470 Atlantic Ave.
Boston, MA 02210
Telephone 617 305 9800
eypac.com
1011007.01

Project Consultant



Site Number: NAC000
CAMIS Number: J00012533
Building Number: 103NAC1101
Secretariat: Department of Higher Education

Schematic Design Set
07/13/2012

Revisions
No. Description Date

Plan Name:
Elevations

Drawing Number:
A201
Drawing of

APPENDIX A: WRITTEN CERTIFICATION


Certification

The undersigned owner of the property where the cleanup site is located and the party conducting the cleanup certify that all sampling plans, sample collection procedures, sample preparation procedures, extraction procedures and instrumental/chemical analysis procedures used to assess or characterize the PCB contamination at the cleanup site, are on file at the location indicated below and are available for EPA inspection, as set forth below.

Document Location

Office of Planning, Design and Construction
Division of Capital Asset Management and Maintenance
One Ashburton Place, 15th Floor
Boston, MA 02108

Property Owner and Party Conducting the Cleanup



Authorized Signature

11/7/13

Date

Michael Lambert

Name of Authorized Representative (Print)

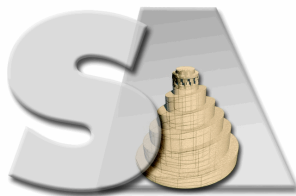
Director of Design and Construction Services

Title

APPENDIX B: LABORATORY ANALYTICAL REPORTS

** Please note that the laboratory analytical reports have been excluded from electronic versions of this PCB Remediation Plan due to the size of the files; laboratory data is included only with hard copy versions of this Plan.*

Report Date:
19-Sep-12 17:18



SPECTRUM ANALYTICAL, INC.

Featuring

HANIBAL TECHNOLOGY

Laboratory Report

- ☒ Final Report
☐ Re-Issued Report
☐ Revised Report

Covino Environmental Associates, Inc.
300 Wildwood Avenue
Woburn, MA 01801
Attn: Dorian Taylor

Project: Bowman Hall, MA College LiberalArts-N Adams, MA
Project #: 12.01271

<u>Laboratory ID</u>	<u>Client Sample ID</u>	<u>Matrix</u>	<u>Date Sampled</u>	<u>Date Received</u>
SB56121-01	01	Exterior Glazing (Window)	30-Aug-12 09:00	11-Sep-12 18:50
SB56121-02	02	Caulk (Exterior Window)	30-Aug-12 09:45	11-Sep-12 18:50
SB56121-03	03	Caulk (Building)	30-Aug-12 10:20	11-Sep-12 18:50
SB56121-04	04	Interior Window Caulk	30-Aug-12 10:40	11-Sep-12 18:50

I attest that the information contained within the report has been reviewed for accuracy and checked against the quality control requirements for each method. These results relate only to the sample(s) as received.

All applicable NELAC requirements have been met.

Massachusetts # M-MA138/MA1110
Connecticut # PH-0777
Florida # E87600/E87936
Maine # MA138
New Hampshire # 2538
New Jersey # MA011/MA012
New York # 11393/11840
Pennsylvania # 68-04426/68-02924
Rhode Island # 98
USDA # S-51435



Authorized by:

Nicole Leja
Laboratory Director

Spectrum Analytical holds certification in the State of Massachusetts for the analytes as indicated with an X in the "Cert." column within this report. Please note that the State of Massachusetts does not offer certification for all analytes. Please refer to our website for specific certification holdings in each state.

Please note that this report contains 10 pages of analytical data plus Chain of Custody document(s). When the Laboratory Report is indicated as revised, this report supersedes any previously dated reports for the laboratory ID(s) referenced above. Where this report identifies subcontracted analyses, copies of the subcontractor's test report are available upon request. This report may not be reproduced, except in full, without written approval from Spectrum Analytical, Inc.

Spectrum Analytical, Inc. is a NELAC accredited laboratory organization and meets NELAC testing standards. Use of the NELAC logo however does not insure that Spectrum is currently accredited for the specific method or analyte indicated. Please refer to our "Quality" web page at www.spectrum-analytical.com for a full listing of our current certifications and fields of accreditation. States in which Spectrum Analytical, Inc. holds NELAC certification are New York, New Hampshire, New Jersey and Florida. All analytical work for Volatile Organic and Air analysis are transferred to and conducted at our 830 Silver Street location (NY-11840, FL-E87936 and NJ-MA012).

Please contact the Laboratory or Technical Director at 800-789-9115 with any questions regarding the data contained in this laboratory report.

CASE NARRATIVE:

The samples were received 1.4 degrees Celsius, please refer to the Chain of Custody for details specific to temperature upon receipt. An infrared thermometer with a tolerance of +/- 1.0 degrees Celsius was used immediately upon receipt of the samples.

If a Matrix Spike (MS), Matrix Spike Duplicate (MSD) or Duplicate (DUP) was not requested on the Chain of Custody, method criteria may have been fulfilled with a source sample not of this Sample Delivery Group.

Sample Acceptance Policy Case Narrative:

Spectrum Analytical Sample Acceptance Policy, in conjunction with NELAC Sample Acceptance Policy (5.5.8.3.2.), require that all samples submitted must have labels attached to each container identifying the sample ID, site location, and/or project number and the collection date written in indelible ink. This is necessary in order to ensure identifiable samples and to maintain sample integrity. Containers in this work order were received without sample labels attached to the sample jars (bottles). Please insure that all sample containers are properly labeled with a unique sample ID, site location, and/or project number and collection date.

See below for any non-conformances and issues relating to quality control samples and/or sample analysis/matrix.

SW846 8082A

Duplicates:

1222231-DUP1 *Source: SB56121-02*

Sample dilution required for high concentration of target analytes to be within the instrument calibration range.

The surrogate recovery for this sample is not available due to sample dilution required from high analyte concentration and/or matrix interference's.

4,4-DB-Octafluorobiphenyl (Sr)
4,4-DB-Octafluorobiphenyl (Sr) [2C]
Decachlorobiphenyl (Sr)
Decachlorobiphenyl (Sr) [2C]

Samples:

SB56121-01 *01*

The Reporting Limit has been raised to account for matrix interference.

Aroclor-1260
Aroclor-1262
Aroclor-1268

SB56121-02 *02*

Sample dilution required for high concentration of target analytes to be within the instrument calibration range.

The surrogate recovery for this sample is not available due to sample dilution required from high analyte concentration and/or matrix interference's.

4,4-DB-Octafluorobiphenyl (Sr)
4,4-DB-Octafluorobiphenyl (Sr) [2C]
Decachlorobiphenyl (Sr)
Decachlorobiphenyl (Sr) [2C]

SB56121-03 *03*

Sample dilution required for high concentration of target analytes to be within the instrument calibration range.

SW846 8082A

Samples:

SB56121-03

03

The surrogate recovery for this sample is not available due to sample dilution required from high analyte concentration and/or matrix interference's.

4,4-DB-Octafluorobiphenyl (Sr)

4,4-DB-Octafluorobiphenyl (Sr) [2C]

Decachlorobiphenyl (Sr)

Decachlorobiphenyl (Sr) [2C]

Sample Identification

01

SB56121-01

Client Project #

12.01271

MatrixExterior Glazing
(Window)Collection Date/Time

30-Aug-12 09:00

Received

11-Sep-12

<i>CAS No.</i>	<i>Analyte(s)</i>	<i>Result</i>	<i>Flag</i>	<i>Units</i>	<i>*RDL</i>	<i>MDL</i>	<i>Dilution</i>	<i>Method Ref.</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Analyst</i>	<i>Batch</i>	<i>Cert.</i>
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Semivolatile Organic Compounds by GC

Polychlorinated Biphenyls

Prepared by method SW846 3540C

12674-11-2	Aroclor-1016	< 194		µg/kg dry	194	97.1	1	SW846 8082A	13-Sep-12	14-Sep-12	BLM	1222231	
11104-28-2	Aroclor-1221	< 194		µg/kg dry	194	175	1	"	"	"	"	"	
11141-16-5	Aroclor-1232	< 194		µg/kg dry	194	125	1	"	"	"	"	"	
53469-21-9	Aroclor-1242	< 194		µg/kg dry	194	114	1	"	"	"	"	"	
12672-29-6	Aroclor-1248	< 194		µg/kg dry	194	95.3	1	"	"	"	"	"	
11097-69-1	Aroclor-1254	5,800		µg/kg dry	194	82.4	1	"	"	"	"	"	
11096-82-5	Aroclor-1260	< 1940	R01	µg/kg dry	1940	745	1	"	"	"	"	"	
37324-23-5	Aroclor-1262	< 1940	R01	µg/kg dry	1940	1810	1	"	"	"	"	"	
11100-14-4	Aroclor-1268	< 1940	R01	µg/kg dry	1940	610	1	"	"	"	"	"	

Surrogate recoveries:

10386-84-2	4,4-DB-Octafluorobiphenyl (Sr)	85			30-150 %			"	"	"	"	"	
10386-84-2	4,4-DB-Octafluorobiphenyl (Sr) [2C]	65			30-150 %			"	"	"	"	"	
2051-24-3	Decachlorobiphenyl (Sr)	100			30-150 %			"	"	"	"	"	
2051-24-3	Decachlorobiphenyl (Sr) [2C]	50			30-150 %			"	"	"	"	"	

General Chemistry Parameters

% Solids	99.5			%			1	SM2540 G Mod.	18-Sep-12	18-Sep-12	DT	1222596	
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Sample Identification

02

SB56121-02

Client Project #

12.01271

MatrixCaulk (Exterior
Window)Collection Date/Time

30-Aug-12 09:45

Received

11-Sep-12

<i>CAS No.</i>	<i>Analyte(s)</i>	<i>Result</i>	<i>Flag</i>	<i>Units</i>	<i>*RDL</i>	<i>MDL</i>	<i>Dilution</i>	<i>Method Ref.</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Analyst</i>	<i>Batch</i>	<i>Cert.</i>
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Semivolatile Organic Compounds by GC

Polychlorinated Biphenyls

GS1

Prepared by method SW846 3540C

12674-11-2	Aroclor-1016	< 17500	D	µg/kg dry	17500	8730	100	SW846 8082A	13-Sep-12	17-Sep-12	BLM	1222231	
11104-28-2	Aroclor-1221	< 17500	D	µg/kg dry	17500	15700	100	"	"	"	"	"	
11141-16-5	Aroclor-1232	< 17500	D	µg/kg dry	17500	11200	100	"	"	"	"	"	
53469-21-9	Aroclor-1242	< 17500	D	µg/kg dry	17500	10300	100	"	"	"	"	"	
12672-29-6	Aroclor-1248	< 17500	D	µg/kg dry	17500	8570	100	"	"	"	"	"	
11097-69-1	Aroclor-1254	2,500,000	D	µg/kg dry	17500	7410	100	"	"	"	"	"	
11096-82-5	Aroclor-1260	< 17500	D	µg/kg dry	17500	6700	100	"	"	"	"	"	
37324-23-5	Aroclor-1262	< 17500	D	µg/kg dry	17500	16300	100	"	"	"	"	"	
11100-14-4	Aroclor-1268	< 17500	D	µg/kg dry	17500	5490	100	"	"	"	"	"	

Surrogate recoveries:

10386-84-2	4,4-DB-Octafluorobiphenyl (Sr)	0	S01		30-150 %			"	"	"	"	"	
10386-84-2	4,4-DB-Octafluorobiphenyl (Sr) [2C]	0	S01		30-150 %			"	"	"	"	"	
2051-24-3	Decachlorobiphenyl (Sr)	0	S01		30-150 %			"	"	"	"	"	
2051-24-3	Decachlorobiphenyl (Sr) [2C]	0	S01		30-150 %			"	"	"	"	"	

General Chemistry Parameters

% Solids	99.6			%			1	SM2540 G Mod.	18-Sep-12	18-Sep-12	DT	1222596	
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Sample Identification

03

SB56121-03

Client Project #

12.01271

Matrix

Caulk (Building)

Collection Date/Time

30-Aug-12 10:20

Received

11-Sep-12

<i>CAS No.</i>	<i>Analyte(s)</i>	<i>Result</i>	<i>Flag</i>	<i>Units</i>	<i>*RDL</i>	<i>MDL</i>	<i>Dilution</i>	<i>Method Ref.</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Analyst</i>	<i>Batch</i>	<i>Cert.</i>
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Semivolatile Organic Compounds by GC

Polychlorinated Biphenyls

GS1

Prepared by method SW846 3540C

12674-11-2	Aroclor-1016	< 193000	D	µg/kg dry	193000	96200	1000	SW846 8082A	13-Sep-12	17-Sep-12	BLM	1222231
11104-28-2	Aroclor-1221	< 193000	D	µg/kg dry	193000	174000	1000	"	"	"	"	"
11141-16-5	Aroclor-1232	< 193000	D	µg/kg dry	193000	124000	1000	"	"	"	"	"
53469-21-9	Aroclor-1242	< 193000	D	µg/kg dry	193000	113000	1000	"	"	"	"	"
12672-29-6	Aroclor-1248	< 193000	D	µg/kg dry	193000	94500	1000	"	"	"	"	"
11097-69-1	Aroclor-1254	30,400,000	D	µg/kg dry	193000	81700	1000	"	"	"	"	"
11096-82-5	Aroclor-1260	< 193000	D	µg/kg dry	193000	73800	1000	"	"	"	"	"
37324-23-5	Aroclor-1262	< 193000	D	µg/kg dry	193000	179000	1000	"	"	"	"	"
11100-14-4	Aroclor-1268	< 193000	D	µg/kg dry	193000	60500	1000	"	"	"	"	"

Surrogate recoveries:

10386-84-2	4,4-DB-Octafluorobiphenyl (Sr)	0	S01		30-150 %			"	"	"	"	"
10386-84-2	4,4-DB-Octafluorobiphenyl (Sr) [2C]	0	S01		30-150 %			"	"	"	"	"
2051-24-3	Decachlorobiphenyl (Sr)	0	S01		30-150 %			"	"	"	"	"
2051-24-3	Decachlorobiphenyl (Sr) [2C]	0	S01		30-150 %			"	"	"	"	"

General Chemistry Parameters

% Solids	98.9			%			1	SM2540 G Mod.	18-Sep-12	18-Sep-12	DT	1222596
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This laboratory report is not valid without an authorized signature on the cover page.

Sample Identification

04

SB56121-04

Client Project #

12.01271

MatrixInterior Window
CaulkCollection Date/Time

30-Aug-12 10:40

Received

11-Sep-12

<i>CAS No.</i>	<i>Analyte(s)</i>	<i>Result</i>	<i>Flag</i>	<i>Units</i>	<i>*RDL</i>	<i>MDL</i>	<i>Dilution</i>	<i>Method Ref.</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Analyst</i>	<i>Batch</i>	<i>Cert.</i>
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Semivolatile Organic Compounds by GC

Polychlorinated Biphenyls

Prepared by method SW846 3540C

12674-11-2	Aroclor-1016	< 186		µg/kg dry	186	92.9	1	SW846 8082A	13-Sep-12	14-Sep-12	BLM	1222231	
11104-28-2	Aroclor-1221	< 186		µg/kg dry	186	168	1	"	"	"	"	"	
11141-16-5	Aroclor-1232	< 186		µg/kg dry	186	119	1	"	"	"	"	"	
53469-21-9	Aroclor-1242	< 186		µg/kg dry	186	110	1	"	"	"	"	"	
12672-29-6	Aroclor-1248	30,300		µg/kg dry	186	91.3	1	"	"	"	"	"	
11097-69-1	Aroclor-1254	13,800		µg/kg dry	186	136	1	"	"	"	"	"	
11096-82-5	Aroclor-1260	7,600		µg/kg dry	186	71.3	1	"	"	"	"	"	
37324-23-5	Aroclor-1262	< 186		µg/kg dry	186	173	1	"	"	"	"	"	
11100-14-4	Aroclor-1268	< 186		µg/kg dry	186	58.4	1	"	"	"	"	"	

Surrogate recoveries:

10386-84-2	4,4-DB-Octafluorobiphenyl (Sr)	110			30-150 %			"	"	"	"	"	
10386-84-2	4,4-DB-Octafluorobiphenyl (Sr) [2C]	55			30-150 %			"	"	"	"	"	
2051-24-3	Decachlorobiphenyl (Sr)	125			30-150 %			"	"	"	"	"	
2051-24-3	Decachlorobiphenyl (Sr) [2C]	135			30-150 %			"	"	"	"	"	

General Chemistry Parameters

% Solids	97.0			%			1	SM2540 G Mod.	18-Sep-12	18-Sep-12	DT	1222596	
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This laboratory report is not valid without an authorized signature on the cover page.

Semivolatile Organic Compounds by GC - Quality Control

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch 1222231 - SW846 3540C										
Blank (1222231-BLK1)					Prepared: 13-Sep-12 Analyzed: 14-Sep-12					
Aroclor-1016	< 20.0		µg/kg wet	20.0						
Aroclor-1016 [2C]	< 20.0		µg/kg wet	20.0						
Aroclor-1221	< 20.0		µg/kg wet	20.0						
Aroclor-1221 [2C]	< 20.0		µg/kg wet	20.0						
Aroclor-1232	< 20.0		µg/kg wet	20.0						
Aroclor-1232 [2C]	< 20.0		µg/kg wet	20.0						
Aroclor-1242	< 20.0		µg/kg wet	20.0						
Aroclor-1242 [2C]	< 20.0		µg/kg wet	20.0						
Aroclor-1248	< 20.0		µg/kg wet	20.0						
Aroclor-1248 [2C]	< 20.0		µg/kg wet	20.0						
Aroclor-1254	< 20.0		µg/kg wet	20.0						
Aroclor-1254 [2C]	< 20.0		µg/kg wet	20.0						
Aroclor-1260	< 20.0		µg/kg wet	20.0						
Aroclor-1260 [2C]	< 20.0		µg/kg wet	20.0						
Aroclor-1262	< 20.0		µg/kg wet	20.0						
Aroclor-1262 [2C]	< 20.0		µg/kg wet	20.0						
Aroclor-1268	< 20.0		µg/kg wet	20.0						
Aroclor-1268 [2C]	< 20.0		µg/kg wet	20.0						
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr)	12.0		µg/kg wet		20.0		60	30-150		
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr) [2C]	12.0		µg/kg wet		20.0		60	30-150		
Surrogate: Decachlorobiphenyl (Sr)	14.0		µg/kg wet		20.0		70	30-150		
Surrogate: Decachlorobiphenyl (Sr) [2C]	13.0		µg/kg wet		20.0		65	30-150		
LCS (1222231-BS1)					Prepared: 13-Sep-12 Analyzed: 14-Sep-12					
Aroclor-1016	241		µg/kg wet	20.0	250		96	40-140		
Aroclor-1016 [2C]	272		µg/kg wet	20.0	250		109	40-140		
Aroclor-1260	245		µg/kg wet	20.0	250		98	40-140		
Aroclor-1260 [2C]	255		µg/kg wet	20.0	250		102	40-140		
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr)	16.0		µg/kg wet		20.0		80	30-150		
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr) [2C]	16.0		µg/kg wet		20.0		80	30-150		
Surrogate: Decachlorobiphenyl (Sr)	20.0		µg/kg wet		20.0		100	30-150		
Surrogate: Decachlorobiphenyl (Sr) [2C]	16.0		µg/kg wet		20.0		80	30-150		
LCS Dup (1222231-BSD1)					Prepared: 13-Sep-12 Analyzed: 14-Sep-12					
Aroclor-1016	236		µg/kg wet	20.0	250		94	40-140	2	30
Aroclor-1016 [2C]	269		µg/kg wet	20.0	250		108	40-140	1	30
Aroclor-1260	249		µg/kg wet	20.0	250		100	40-140	2	30
Aroclor-1260 [2C]	258		µg/kg wet	20.0	250		103	40-140	1	30
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr)	16.0		µg/kg wet		20.0		80	30-150		
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr) [2C]	16.0		µg/kg wet		20.0		80	30-150		
Surrogate: Decachlorobiphenyl (Sr)	21.0		µg/kg wet		20.0		105	30-150		
Surrogate: Decachlorobiphenyl (Sr) [2C]	16.0		µg/kg wet		20.0		80	30-150		
Duplicate (1222231-DUP1)					Prepared: 13-Sep-12 Analyzed: 17-Sep-12					
Aroclor-1016	< 16300	D	µg/kg dry	16300		BRL				30
Aroclor-1016 [2C]	< 16300	D	µg/kg dry	16300		BRL				30
Aroclor-1221	< 16300	D	µg/kg dry	16300		BRL				30
Aroclor-1221 [2C]	< 16300	D	µg/kg dry	16300		BRL				30
Aroclor-1232	< 16300	D	µg/kg dry	16300		BRL				30
Aroclor-1232 [2C]	< 16300	D	µg/kg dry	16300		BRL				30
Aroclor-1242	< 16300	D	µg/kg dry	16300		BRL				30
Aroclor-1242 [2C]	< 16300	D	µg/kg dry	16300		BRL				30
Aroclor-1248	< 16300	D	µg/kg dry	16300		BRL				30

This laboratory report is not valid without an authorized signature on the cover page.

Semivolatile Organic Compounds by GC - Quality Control

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch 1222231 - SW846 3540C										
<u>Duplicate (1222231-DUP1)</u>		GS1	<u>Source: SB56121-02</u>		<u>Prepared: 13-Sep-12 Analyzed: 17-Sep-12</u>					
Aroclor-1248 [2C]	< 16300	D	µg/kg dry	16300		BRL				30
Aroclor-1254	2140000	D	µg/kg dry	16300		2380000			11	30
Aroclor-1254 [2C]	2300000	D	µg/kg dry	16300		2500000			8	30
Aroclor-1260	< 16300	D	µg/kg dry	16300		BRL				30
Aroclor-1260 [2C]	< 16300	D	µg/kg dry	16300		BRL				30
Aroclor-1262	< 16300	D	µg/kg dry	16300		BRL				30
Aroclor-1262 [2C]	< 16300	D	µg/kg dry	16300		BRL				30
Aroclor-1268	< 16300	D	µg/kg dry	16300		BRL				30
Aroclor-1268 [2C]	< 16300	D	µg/kg dry	16300		BRL				30
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr)	0.00	S01	µg/kg dry		163			30-150		
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr) [2C]	0.00	S01	µg/kg dry		163			30-150		
Surrogate: Decachlorobiphenyl (Sr)	0.00	S01	µg/kg dry		163			30-150		
Surrogate: Decachlorobiphenyl (Sr) [2C]	0.00	S01	µg/kg dry		163			30-150		

This laboratory report is not valid without an authorized signature on the cover page.

Notes and Definitions

D	Data reported from a dilution
GS1	Sample dilution required for high concentration of target analytes to be within the instrument calibration range.
R01	The Reporting Limit has been raised to account for matrix interference.
S01	The surrogate recovery for this sample is not available due to sample dilution required from high analyte concentration and/or matrix interference's.
dry	Sample results reported on a dry weight basis
NR	Not Reported
RPD	Relative Percent Difference

Laboratory Control Sample (LCS): A known matrix spiked with compound(s) representative of the target analytes, which is used to document laboratory performance.

Matrix Duplicate: An intra-laboratory split sample which is used to document the precision of a method in a given sample matrix.

Matrix Spike: An aliquot of a sample spiked with a known concentration of target analyte(s). The spiking occurs prior to sample preparation and analysis. A matrix spike is used to document the bias of a method in a given sample matrix.

Method Blank: An analyte-free matrix to which all reagents are added in the same volumes or proportions as used in sample processing. The method blank should be carried through the complete sample preparation and analytical procedure. The method blank is used to document contamination resulting from the analytical process.

Method Detection Limit (MDL): The minimum concentration of a substance that can be measured and reported with 99% confidence that the analyte concentration is greater than zero and is determined from analysis of a sample in a given matrix type containing the analyte.

Reportable Detection Limit (RDL): The lowest concentration that can be reliably achieved within specified limits of precision and accuracy during routine laboratory operating conditions. For many analytes the RDL analyte concentration is selected as the lowest non-zero standard in the calibration curve. While the RDL is approximately 5 to 10 times the MDL, the RDL for each sample takes into account the sample volume/weight, extract/digestate volume, cleanup procedures and, if applicable, dry weight correction. Sample RDLs are highly matrix-dependent.

Surrogate: An organic compound which is similar to the target analyte(s) in chemical composition and behavior in the analytical process, but which is not normally found in environmental samples. These compounds are spiked into all blanks, standards, and samples prior to analysis. Percent recoveries are calculated for each surrogate.

Continuing Calibration Verification: The calibration relationship established during the initial calibration must be verified at periodic intervals. Concentrations, intervals, and criteria are method specific.

Validated by:
Kimberly Wisk

January 3, 2013

Ms. Amy Wallace
Woodard & Curran
41 Hutchins Drive
Portland ME 04102

RE: Analytical Results Case Narrative
 Analytics # 74510
 Mass College of Liberal Arts Project No: 226296

Dear Ms. Wallace;

Enclosed please find the analytical results for samples submitted for the above-mentioned project. The attached Cover Page lists the sample IDs, Lab tracking numbers and collection dates for the samples included in this deliverable.

Samples were analyzed Polychlorinated Biphenyls (PCBs) by EPA Method 8082A.

Unless otherwise noted in the Non-conformance Summary listed below, all of the quality control (QC) criteria including initial calibration, calibration verification, surrogate recovery, holding time and method accuracy/precision for these analyses were within acceptable limits.

This Level II data package has been assembled in the following order:

- Case Narrative/Non-Conformance Summary
- Sample Log Sheet - Cover Page
- PCB Form 1 Data Sheet for Samples
- PCB Form 10 Confirmation Results and Blanks
- Chromatograms
- PCB Form 3 MS/MSD (LCS) Recoveries
- Chain of Custody (COC) Forms

QC NON-CONFORMANCE SUMMARY

Sample Receipt:

Sample labels did not have dates and times. The chain of custody was complete with all sample information.

PCBs by EPA Method 8082:

No results were reported below the quantitation limit.

All samples were analyzed at a dilution due to concentrations of PCBs detected in the samples.

If you have any questions on these results, please do not hesitate to contact me.

Sincerely,
ANALYTICS Environmental Laboratory, LLC



Stephen L. Knollmeyer
Laboratory Director

Ms. Amy Wallace
Woodard & Curran
41 Hutchins Drive
Portland ME 04102

Report Number: 74510

Revision: Rev. 0

Re: Mass College of Liberal Arts (Project No: 226296)

Enclosed are the results of the analyses on your sample(s). Samples were received on 18 December 2012 and analyzed for the tests listed. Samples were received in acceptable condition, with the exceptions noted below or on the chain of custody. These results pertain to samples as received by the laboratory and for the analytical tests requested on the chain of custody. The results reported herein conform to the most current NELAC standards, where applicable, unless otherwise narrated in the body of the report. Please see individual reports for specific methodologies and references.

Sample Analysis: The attached pages detail the Client Sample IDs, Lab Sample IDs, and Analyses requested

Sample Receipt Exceptions: None

Analytics Environmental Laboratory is certified by the states of New Hampshire, Maine, Massachusetts, Connecticut, Rhode Island, Virginia, Maryland, North Carolina, and is accredited by the Department of Defense (DOD) ELAP program. A list of actual certified parameters is available upon request.

If you have any questions on these results, please do not hesitate to contact us.

Authorized signature


Stephen L. Knollmeyer Lab. Director

Date

1/3/2013

**This report shall not be reproduced, except in full, without the written
consent of Analytics Environmental Laboratory, LLC.**

CLIENT: Woodard & Curran

REPORT NUMBER: 74510

REV: Rev. 0

PROJECT: Mass College of Liberal Arts (Project No: 226296)

<u>Lab Number</u>	<u>Sample Date</u>	<u>Station Location</u>	<u>Analysis</u>	<u>Comments</u>
74510-1	12/17/12	BH-CBK-001	EPA 8082 (PCBs only)	
74510-2	12/17/12	BH-CBK-002	EPA 8082 (PCBs only)	
74510-3	12/17/12	BH-CBK-003	EPA 8082 (PCBs only)	
74510-4	12/17/12	BH-CBK-004	EPA 8082 (PCBs only)	
74510-5	12/17/12	BH-CBK-005	EPA 8082 (PCBs only)	
74510-6	12/17/12	BH-CBK-006	EPA 8082 (PCBs only)	
74510-7	12/17/12	BH-CBK-007	EPA 8082 (PCBs only)	
74510-8	12/17/12	BH-CBK-008	EPA 8082 (PCBs only)	
74510-9	12/17/12	BH-CBK-009	EPA 8082 (PCBs only)	
74510-10	12/17/12	BH-CBK-010	EPA 8082 (PCBs only)	
74510-11	12/17/12	BH-CBK-011	EPA 8082 (PCBs only)	
74510-12	12/17/12	BH-CBK-012	EPA 8082 (PCBs only)	
74510-13	12/17/12	BH-CBK-013	EPA 8082 (PCBs only)	
74510-14	12/17/12	BH-CBK-014	EPA 8082 (PCBs only)	
74510-15	12/17/12	BH-CBK-015	EPA 8082 (PCBs only)	
74510-16	12/17/12	BH-CBK-016	Electronic Data Deliverable	
	12/17/12	BH-CBK-016	EPA 8082 (PCBs only)	

MassDEP Analytical Protocol Certification Form

Laboratory Name: Analytics Environmental Laboratory, LLC

Project #: 74510

Project Location: Mass College of Liberal Arts

RTN:

This Form provides certifications for the following data set. Laboratory Sample ID Number(s):

74510-1 through 74510-16

 Matrices: ☐ Groundwater/Surface Water ☐ Soil/Sediment ☐ Drinking Water ☐ Air ☒ Other

CAM Protocol (check all that apply below):

8260 VOC CAM II A <input type="checkbox"/>	7470/7471 Hg CAM III B <input type="checkbox"/>	MassDEP VPH CAM IV A <input type="checkbox"/>	8081 Pesticides CAM V B <input type="checkbox"/>	7196 Hex Cr CAM VI B <input type="checkbox"/>	MassDEP APH CAM IX A <input type="checkbox"/>
8270 SVOC CAM II B <input type="checkbox"/>	7010 Metals CAM III C <input type="checkbox"/>	MassDEP EPH CAM IV B <input type="checkbox"/>	8151 Herbicides CAM V C <input type="checkbox"/>	8330 Explosives CAM VIII A <input type="checkbox"/>	TO-15 VOC CAM IX B <input type="checkbox"/>
6010 Metals CAM III A <input type="checkbox"/>	6020 Metals CAM III D <input type="checkbox"/>	8082 PCB CAM V A <input checked="" type="checkbox"/>	9014 Total Cyanide/PAC CAM VI A <input type="checkbox"/>	6860 Perchlorate CAM VIII B <input type="checkbox"/>	

Affirmative Responses to Questions A through F are required for "Presumptive Certainty" status

A	Were all samples received in a condition consistent with those described on the Chain-of-Custody, properly preserved (including temperature) in the field or laboratory, and prepared/analyzed within method holding times?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
B	Were the analytical method(s) and all associated QC requirements specified in the selected CAM protocol(s) followed?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
C	Were all required corrective actions and analytical response actions specified in the selected CAM protocol(s) implemented for all identified performance standard non-conformances?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
D	Does the laboratory report comply with all reporting requirements specified in CAM VII A, "Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data"?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
E	a. VPH, EPH, and APH Methods only: Was each method conducted without significant modification(s)? (Refer to individual method(s) for a list of significant modifications). b. APH and TO-15 Methods only: Was the complete analyte list reported for each method?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No
F	Were all applicable CAM protocol QC and performance standard non-conformances identified and evaluated in a laboratory narrative (including all "No" responses to Questions A through E)?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

Responses to Questions G, H and I below are required for "Presumptive Certainty" status

G	Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocol(s)?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No ¹
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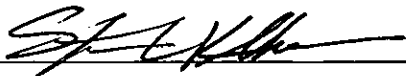
Data User Note: Data that achieve "Presumptive Certainty" status may not necessarily meet the data usability and representativeness requirements described in 310 CMR 40.1056 (2)(k) and WSC-07-350.

H	Were ALL QC performance standards specified in the CAM protocol(s) achieved?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No ¹
I	Were results reported for the complete analyte list specified in the selected CAM protocol(s)?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No ¹

¹ All negative responses must be addressed in an attached laboratory narrative.

I, the undersigned, attest under the pains and penalties of perjury that, based upon my personal inquiry of those responsible for obtaining the information, the material contained in this analytical report is, to the best of my knowledge and belief, accurate and complete.

Signature:



Position: Laboratory Director

Printed Name: Stephen L. Knollmeyer

Date: January 03, 2013

Surrogate Compound Limits

Matrix:	Aqueous	Solid	
Units:	% Recovery	% Recovery	Method
Volatile Organic Compounds - Drinking Water			
1,4-Difluorobenzene	70-130		EPA 524.2
Bromofluorobenzene	70-130		
1,2-Dichlorobenzene-d4	70-130		
Volatile Organic Compounds			
1,2-Dichloroethane-d4	70-120	70-120	EPA 624/8260B
Toluene-d8	85-120	85-120	
Bromofluorobenzene	75-120	75-120	
Semi-Volatile Organic Compounds			
2-Fluorophenol	20-110	35-105	EPA 625/8270C
d5-Phenol	15-110	40-100	
d5-nitrobenzene	40-110	35-100	
2-Fluorobiphenyl	50-110	45-105	
2,4,6-Tribromophenol	40-110	40-125	
d14-p-terphenyl	50-130	30-125	
PAH's by SIM			
d5-nitrobenzene	21-110	35-110	EPA 8270C
2-Fluorobiphenyl	36-121	45-105	
d14-p-terphenyl	33-141	30-125	
Pesticides and PCBs			
2,4,5,6-Tetrachloro-m-xylene (TCX)	46-122	40-130	EPA 608/8082
Decachlorobiphenyl (DCB)	40-135	40-130	
Herbicides			
Dichloroacetic acid (DCAA)	30-150	30-150	
Gasoline Range Organics/TPH Gasoline			
Trifluorotoluene TFT (FID)	60-140	60-140	MEDEP 4217/EPA 8015
Bromofluorobenzene (BFB) (FID)	60-140	60-140	
Trifluorotoluene TFT (PID)	60-140	60-140	
Bromofluorobenzene (BFB) (PID)	60-140	60-140	
Diesel Range Organics/TPH Diesel			
m-terphenyl	60-140	60-140	MEDEP 4125/EPA 8015/CT ETPH
Volatile Petroleum Hydrocarbons			
2,5-Dibromotoluene (PID)	70-130	70-130	MADEP VPH May 2004 Rev1.1
2,5-Dibromotoluene (FID)	70-130	70-130	
Extracatable Petroleum Hydrocarbons			
1-chloro-octadecane (aliphatic)	40-140	40-140	MADEP EPH May 2004 Rev1.1
o-Terphenyl (aromatic)	40-140	40-140	
2-Fluorobiphenyl (Fractionation)	40-140	40-140	
2-Bromonaphthalene (fractionation)	40-140	40-140	

PCB
DATA SUMMARIES

Ms. Amy Wallace
Woodard & Curran
41 Hutchins Drive
Portland ME 04102

January 3, 2013

SAMPLE DATA

CLIENT SAMPLE ID

Project Name: Mass College of Liberal Arts

Project Number: 226296

Field Sample ID: BH-CBK-001

Lab Sample ID: 74510-1

Matrix: Solid

Percent Solid: 99

Dilution Factor: 30500

Collection Date: 12/17/12

Lab Receipt Date: 12/18/12

Extraction Date: 12/26/12

Analysis Date: 01/02/13

PCB ANALYTICAL RESULTS

COMPOUND	Quantitation Limit $\mu\text{g/kg}$	Results $\mu\text{g/kg}$
PCB-1016	1007000	U
PCB-1221	1007000	U
PCB-1232	1007000	U
PCB-1242	1007000	U
PCB-1248	1007000	U
PCB-1254	1007000	8690000
PCB-1260	1007000	U
PCB-1262	1007000	U
PCB-1268	1007000	U

Surrogate Standard Recovery

2,4,5,6-Tetrachloro-m-xylene * %
Decachlorobiphenyl * %

U=Undetected J=Estimated E=Exceeds Calibration Range B=Detected in Blank

METHODOLOGY: Sample analysis conducted according to Test Methods for Evaluating Solid Waste, SW-846 Method 8082A.
Sample preparation conducted according to Test Methods for Evaluating Solid Waste, SW-846 Method 3540C.
Sample cleanup was conducted according to SW-846 Method 3665A.

COMMENTS: Results are expressed on a dry weight basis.
* The surrogates were diluted out.

PCB EXT Report

Authorized signature



PCB
COLUMN RELATIVE PERCENT DIFFERENCE

Instrument ID: M

SDG: 74510

GC Column #1: STX-CLPesticides I

Sample: 74510-1,1:5000,,A/C

Column ID: 0.25 mm

Data File: M65287.D

GC Column #2: STX-CLPesticides II

Dilution Factor: 30519.7

Column ID: 0.25 mm

Column #1		Column #2		
COMPOUND	SAMPLE RESULT (ug/kg)	SAMPLE RESULT (ug/kg)	RPD	#
PCB 1254	8686147	8404353	3.3	

Column to be used to flag RPD values greater than QC limit of 40%

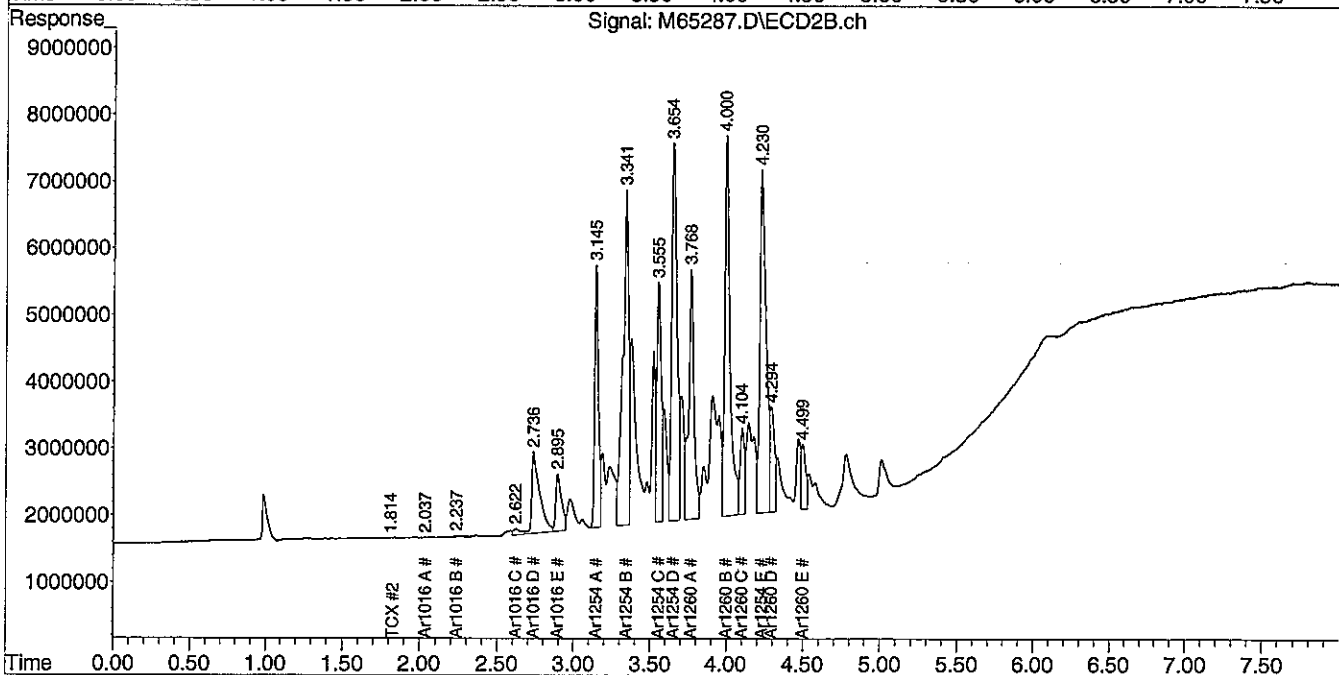
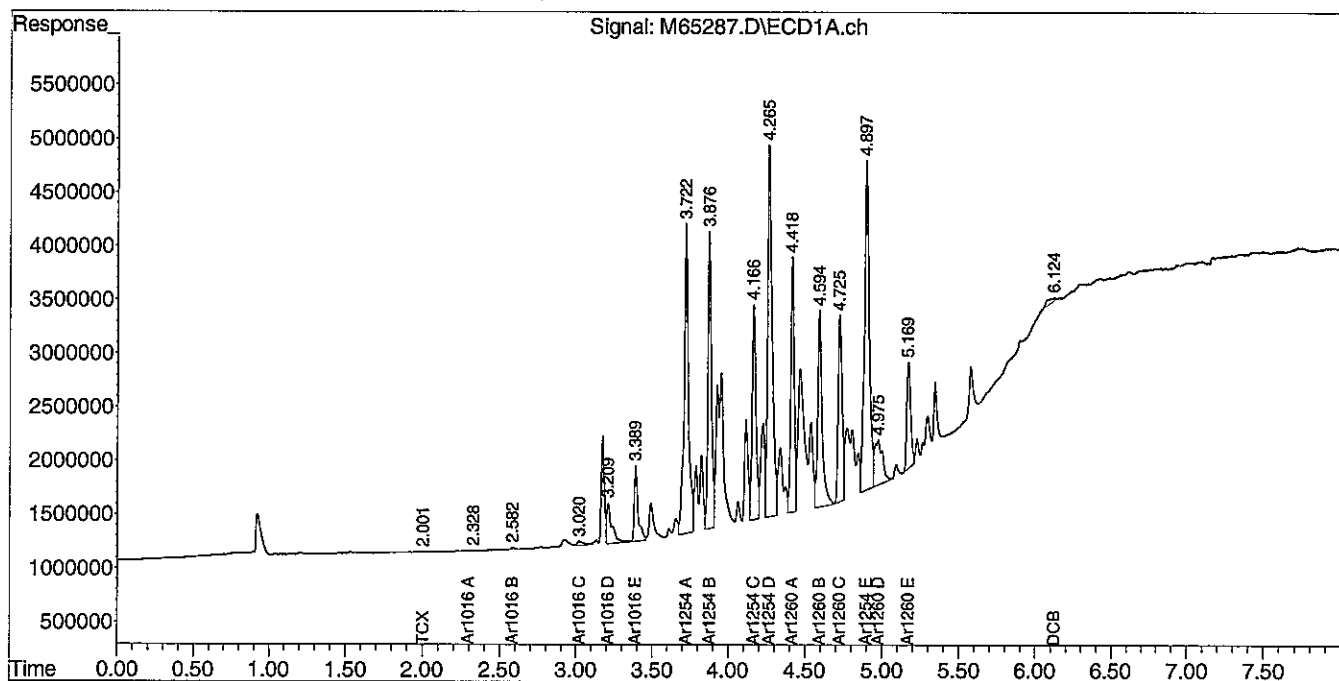
* Values outside QC limits

Comments: _____

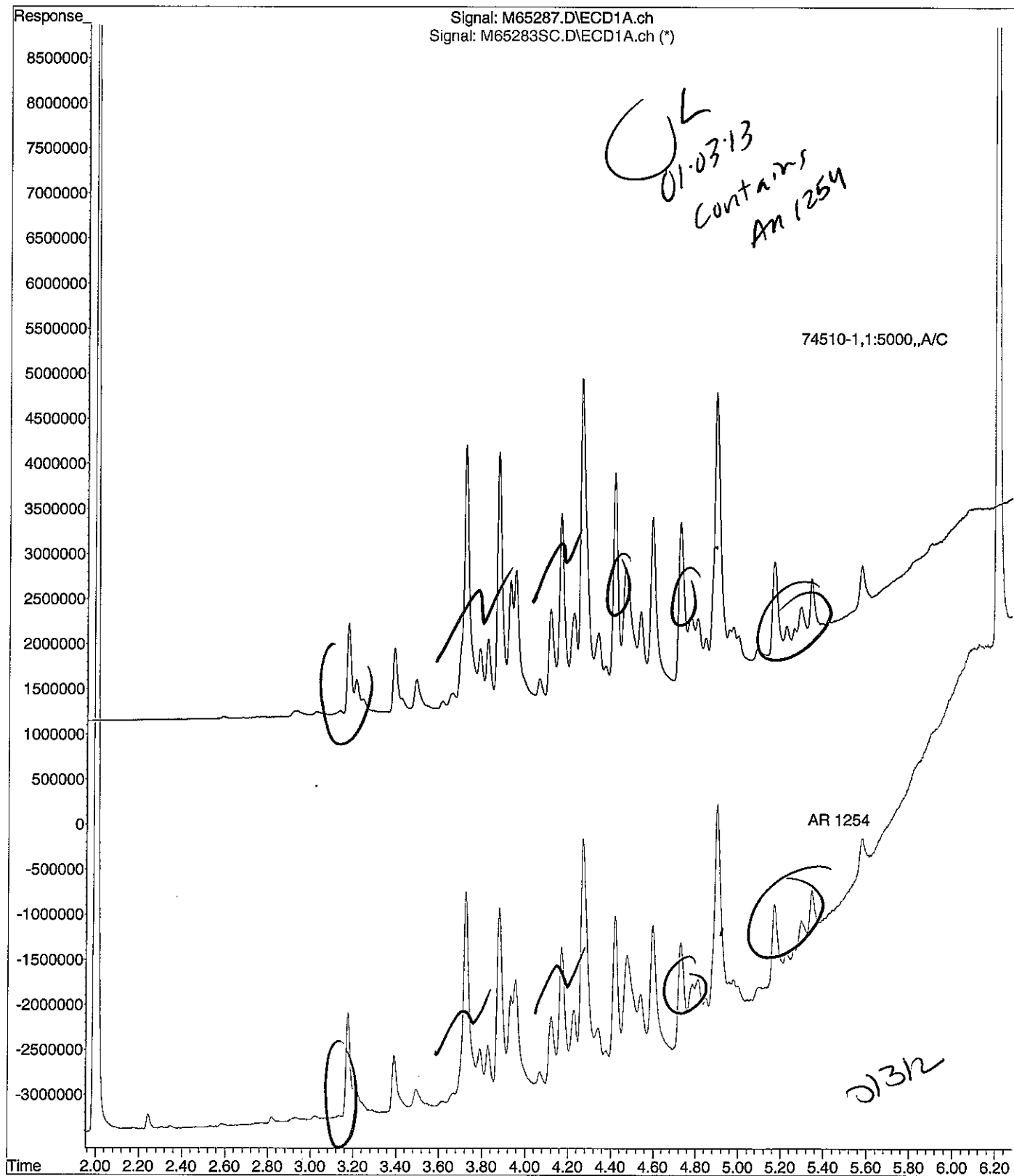
Data Path : C:\msdchem\1\DATA\010213-M\
 Data File : M65287.D
 Signal(s) : Signal #1: ECD1A.ch Signal #2: ECD2B.ch
 Acq On : 2 Jan 2013 5:09 pm
 Operator : JK
 Sample : 74510-1,1:5000,,A/C
 Misc : SOIL
 ALS Vial : 9 Sample Multiplier: 1

Integration File signal 1: events.e
 Integration File signal 2: events2.e
 Quant Time: Jan 03 08:39:44 2013
 Quant Method : C:\msdchem\1\METHODS\PCB122612.M
 Quant Title : SW-846 METHOD 8082 Aroclor 1016/1260/1254
 QLast Update : Wed Jan 02 21:46:18 2013
 Response via : Initial Calibration
 Integrator: ChemStation

Volume Inj. : 2 uL
 Signal #1 Phase : STX-CLPPesticides Signal #2 Phase: STX-CLPPesticides
 Signal #1 Info : 30 m x 0.25mm x 0 Signal #2 Info : 30 m x 0.25mm x 0.25 um



File : C:\msdchem\1\DATA\010213-M\M65287.D
Operator : JK
Acquired : 2 Jan 2013 5:09 pm using AcqMethod PCB.M
Instrument : Instrument M
Sample Name: 74510-1,1:5000,,A/C
Misc Info : SOIL
Vial Number: 9



Ms. Amy Wallace
Woodard & Curran
41 Hutchins Drive
Portland ME 04102

January 3, 2013

SAMPLE DATA

CLIENT SAMPLE ID

Project Name: Mass College of Liberal Arts
Project Number: 226296
Field Sample ID: BH-CBK-002

Lab Sample ID: 74510-2
Matrix: Solid
Percent Solid: 99
Dilution Factor: 13100
Collection Date: 12/17/12
Lab Receipt Date: 12/18/12
Extraction Date: 12/26/12
Analysis Date: 01/02/13

PCB ANALYTICAL RESULTS

COMPOUND	Quantitation Limit $\mu\text{g/kg}$	Results $\mu\text{g/kg}$
PCB-1016	432000	U
PCB-1221	432000	U
PCB-1232	432000	U
PCB-1242	432000	U
PCB-1248	432000	U
PCB-1254	432000	U
PCB-1260	432000	U
PCB-1262	432000	6190000
PCB-1268	432000	U

Surrogate Standard Recovery

2,4,5,6-Tetrachloro-m-xylene * %
Decachlorobiphenyl * %

U=Undetected J=Estimated E=Exceeds Calibration Range B=Detected in Blank

METHODOLOGY: Sample analysis conducted according to Test Methods for Evaluating Solid Waste, SW-846 Method 8082A.
Sample preparation conducted according to Test Methods for Evaluating Solid Waste, SW-846 Method 3540C.
Sample cleanup was conducted according to SW-846 Method 3665A.

COMMENTS: Results are expressed on a dry weight basis.
* The surrogates were diluted out.

PCB EXT Report

Authorized signature



PCB

COLUMN RELATIVE PERCENT DIFFERENCE

Instrument ID: M

SDG: 74510

GC Column #1: STX-CLPesticides I

Sample: 74510-2,1:2000,,A/C

Column ID: 0.25 mm

Data File: M65288.D

GC Column #2: STX-CLPesticides II

Dilution Factor: 13085.2

Column ID: 0.25 mm

COMPOUND	Column #1	Column #2		
	SAMPLE RESULT (ug/kg)	SAMPLE RESULT (ug/kg)	RPD	#
PCB 1262	5776656	6194499	7.0	

Column to be used to flag RPD values greater than QC limit of 40%

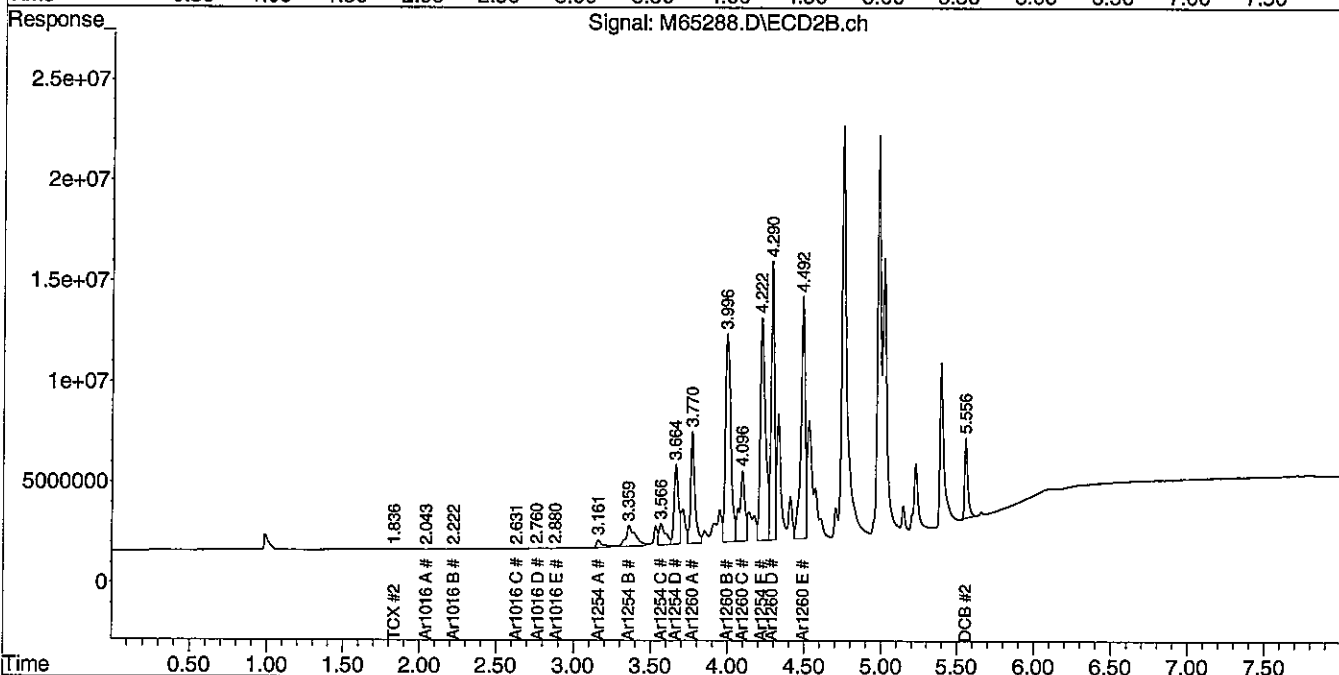
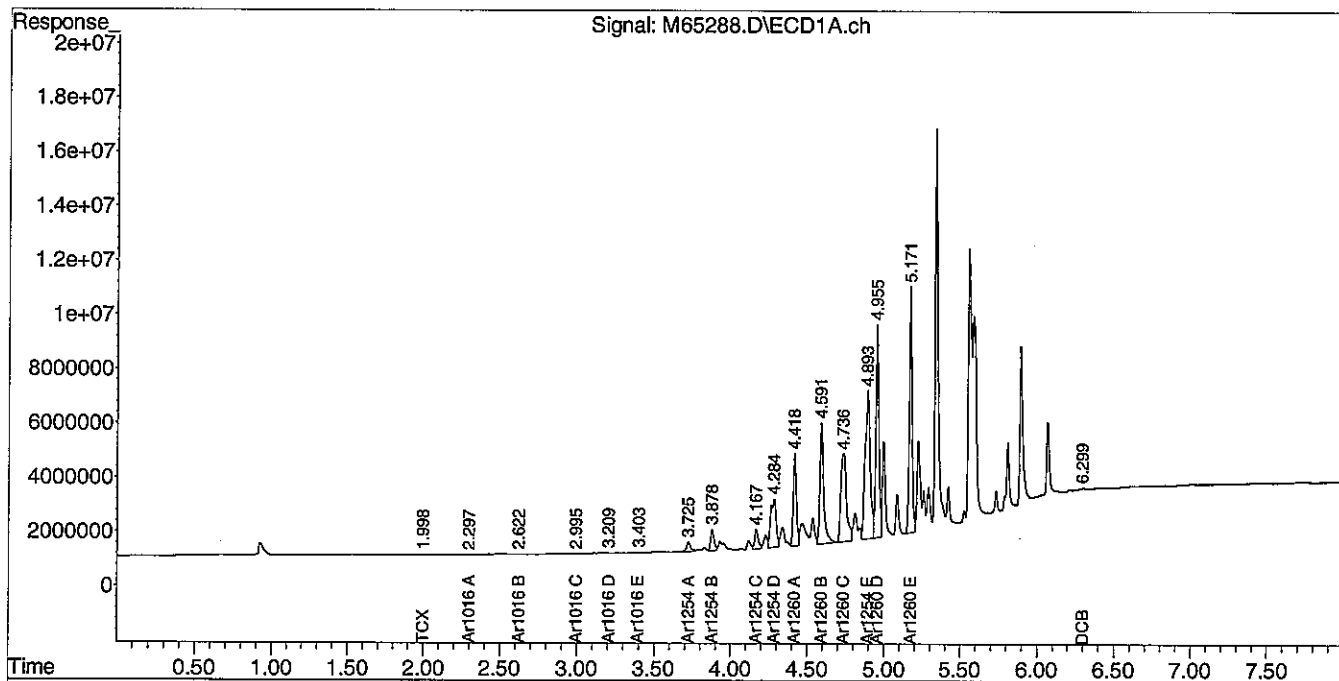
* Values outside QC limits

Comments: _____

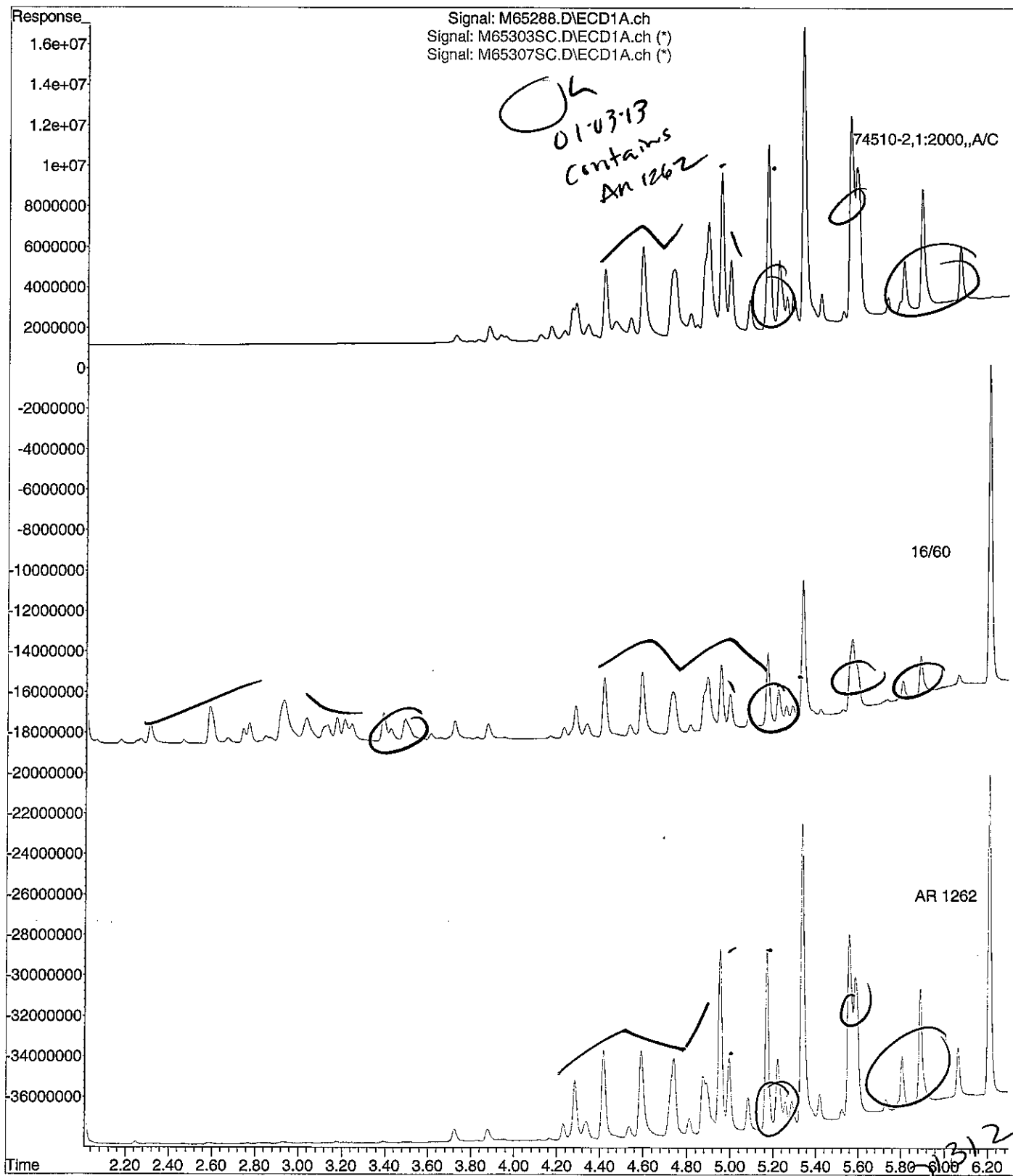
Data Path : C:\msdchem\1\DATA\010213-M\
Data File : M65288.D
Signal(s) : Signal #1: ECD1A.ch Signal #2: ECD2B.ch
Acq On : 2 Jan 2013 5:19 pm
Operator : JK
Sample : 74510-2,1:2000,,A/C
Misc : SOIL
ALS Vial : 10 Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Jan 03 08:39:46 2013
Quant Method : C:\msdchem\1\METHODS\PCB122612.M
Quant Title : SW-846 METHOD 8082 Aroclor 1016/1260/1254
QLast Update : Wed Jan 02 21:46:18 2013
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 2 uL
Signal #1 Phase : STX-CLPPesticides Signal #2 Phase: STX-CLPPesticides
Signal #1 Info : 30 m x 0.25mm x 0 Signal #2 Info : 30 m x 0.25mm x 0.25 um



File :C:\msdchem\1\DATA\010213-M\M65288.D
Operator : JK
Acquired : 2 Jan 2013 5:19 pm using AcqMethod PCB.M
Instrument : Instrument M
Sample Name: 74510-2,1:2000,,A/C
Misc Info : SOIL
Vial Number: 10



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January 3, 2013

SAMPLE DATA

CLIENT SAMPLE ID

Project Name: Mass College of Liberal Arts
Project Number: 226296
Field Sample ID: BH-CBK-003

Lab Sample ID: 74510-3
Matrix: Solid
Percent Solid: 100
Dilution Factor: 1940
Collection Date: 12/17/12
Lab Receipt Date: 12/18/12
Extraction Date: 12/26/12
Analysis Date: 01/02/13

PCB ANALYTICAL RESULTS

COMPOUND	Quantitation Limit $\mu\text{g/kg}$	Results $\mu\text{g/kg}$
PCB-1016	64000	U
PCB-1221	64000	U
PCB-1232	64000	U
PCB-1242	64000	U
PCB-1248	64000	U
PCB-1254	64000	U
PCB-1260	64000	U
PCB-1262	64000	809000
PCB-1268	64000	U
Surrogate Standard Recovery		
2,4,5,6-Tetrachloro-m-xylene	*	%
Decachlorobiphenyl	*	%
U=Undetected J=Estimated E=Exceeds Calibration Range B=Detected in Blank		

METHODOLOGY: Sample analysis conducted according to Test Methods for Evaluating Solid Waste, SW-846 Method 8082A.
Sample preparation conducted according to Test Methods for Evaluating Solid Waste, SW-846 Method 3540C.
Sample cleanup was conducted according to SW-846 Method 3665A.

COMMENTS: Results are expressed on a dry weight basis.
* The surrogates were diluted out.

PCB
COLUMN RELATIVE PERCENT DIFFERENCE

Instrument ID: M
GC Column #1: STX-CLPesticides I
Column ID: 0.25 mm
GC Column #2: STX-CLPesticides II
Column ID: 0.25 mm

SDG: 74510
Sample: 74510-3,1:200,,A/C
Data File: M65289.D
Dilution Factor: 1941.7

COMPOUND	Column #1	Column #2		
	SAMPLE RESULT (ug/kg)	SAMPLE RESULT (ug/kg)	RPD	#
PCB 1262	809030	771555	4.7	

Column to be used to flag RPD values greater than QC limit of 40%

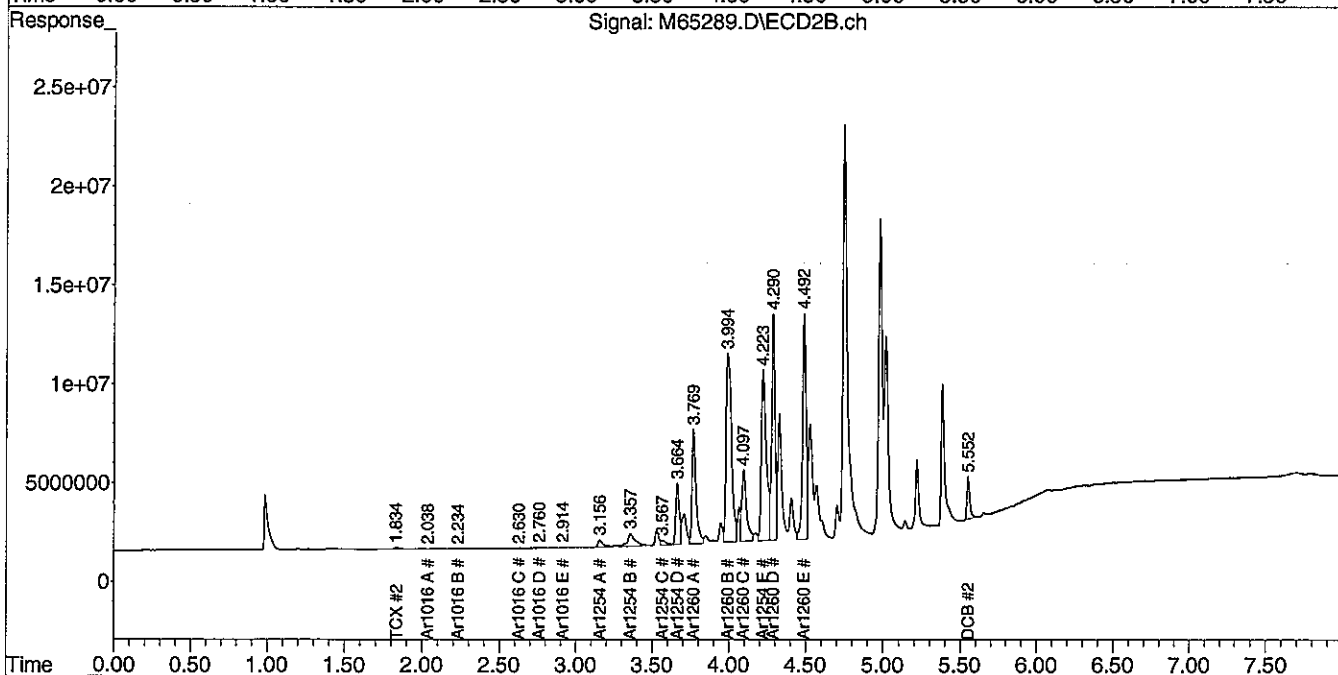
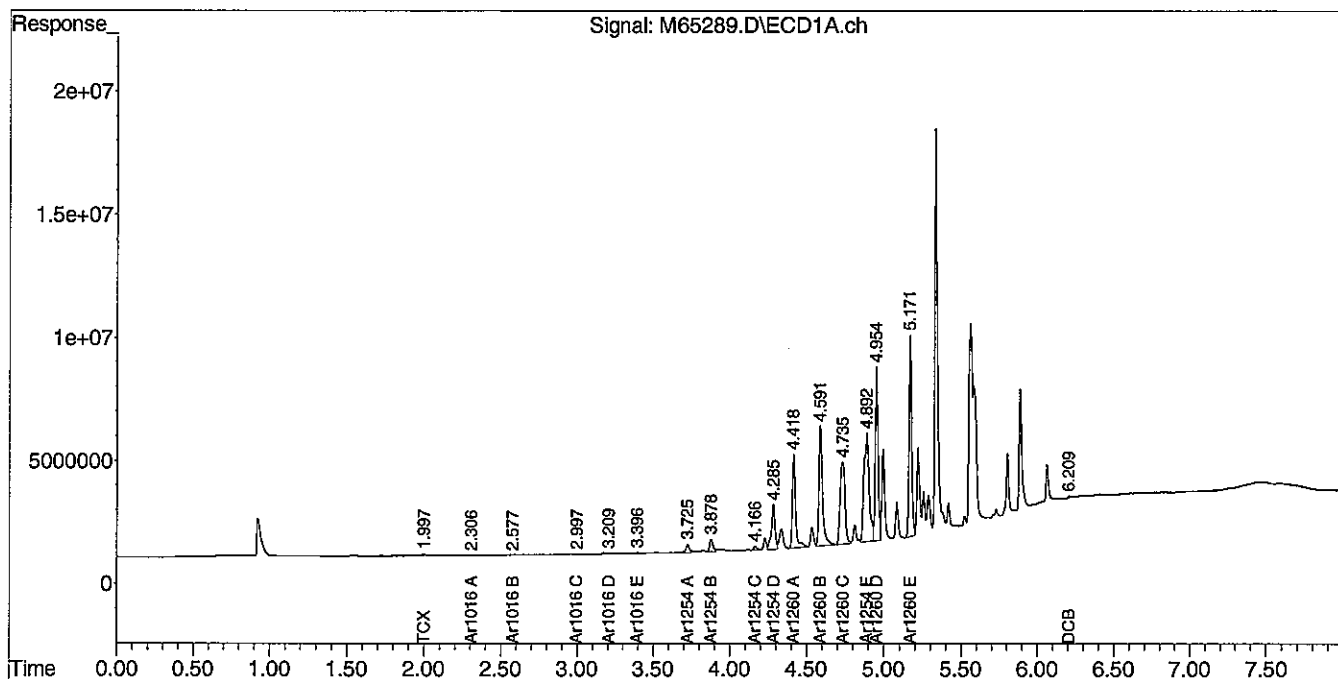
* Values outside QC limits

Comments: _____

Data Path : C:\msdchem\1\DATA\010213-M\
 Data File : M65289.D
 Signal(s) : Signal #1: ECD1A.ch Signal #2: ECD2B.ch
 Acq On : 2 Jan 2013 5:29 pm
 Operator : JK
 Sample : 74510-3,1:200,,A/C
 Misc : SOIL
 ALS Vial : 11 Sample Multiplier: 1

Integration File signal 1: events.e
 Integration File signal 2: events2.e
 Quant Time: Jan 03 08:39:48 2013
 Quant Method : C:\msdchem\1\METHODS\PCB122612.M
 Quant Title : SW-846 METHOD 8082 Aroclor 1016/1260/1254
 QLast Update : Wed Jan 02 21:46:18 2013
 Response via : Initial Calibration
 Integrator: ChemStation

Volume Inj. : 2 uL
 Signal #1 Phase : STX-CLPPesticides Signal #2 Phase: STX-CLPPesticides
 Signal #1 Info : 30 m x 0.25mm x 0 Signal #2 Info : 30 m x 0.25mm x 0.25 um



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SAMPLE DATA

CLIENT SAMPLE ID

Project Name: Mass College of Liberal Arts
Project Number: 226296
Field Sample ID: BH-CBK-004

Lab Sample ID: 74510-4
Matrix: Solid
Percent Solid: 100
Dilution Factor: 50000
Collection Date: 12/17/12
Lab Receipt Date: 12/18/12
Extraction Date: 12/26/12
Analysis Date: 01/02/13

PCB ANALYTICAL RESULTS

COMPOUND	Quantitation Limit $\mu\text{g/kg}$	Results $\mu\text{g/kg}$
PCB-1016	1650000	U
PCB-1221	1650000	U
PCB-1232	1650000	U
PCB-1242	1650000	U
PCB-1248	1650000	U
PCB-1254	1650000	40900000
PCB-1260	1650000	U
PCB-1262	1650000	U
PCB-1268	1650000	U

Surrogate Standard Recovery

2,4,5,6-Tetrachloro-m-xylene * %
Decachlorobiphenyl * %

U=Undetected J=Estimated E=Exceeds Calibration Range B=Detected in Blank

METHODOLOGY: Sample analysis conducted according to Test Methods for Evaluating Solid Waste, SW-846 Method 8082A.
Sample preparation conducted according to Test Methods for Evaluating Solid Waste, SW-846 Method 3540C.
Sample cleanup was conducted according to SW-846 Method 3665A.

COMMENTS: Results are expressed on a dry weight basis.
* The surrogates were diluted out.

PCB EXT Report

Authorized signature



PCB
COLUMN RELATIVE PERCENT DIFFERENCE

Instrument ID: M	SDG: 74510
GC Column #1: STX-CLPesticides I	Sample: 74510-4,1:5000,,A/C
Column ID: 0.25 mm	Data File: M65290.D
GC Column #2: STX-CLPesticides II	Dilution Factor: 50000.0
Column ID: 0.25 mm	

Column #1		Column #2	
COMPOUND	SAMPLE RESULT (ug/kg)	SAMPLE RESULT (ug/kg)	RPD #
PCB 1254	40925200	39796000	2.8

Column to be used to flag RPD values greater than QC limit of 40%

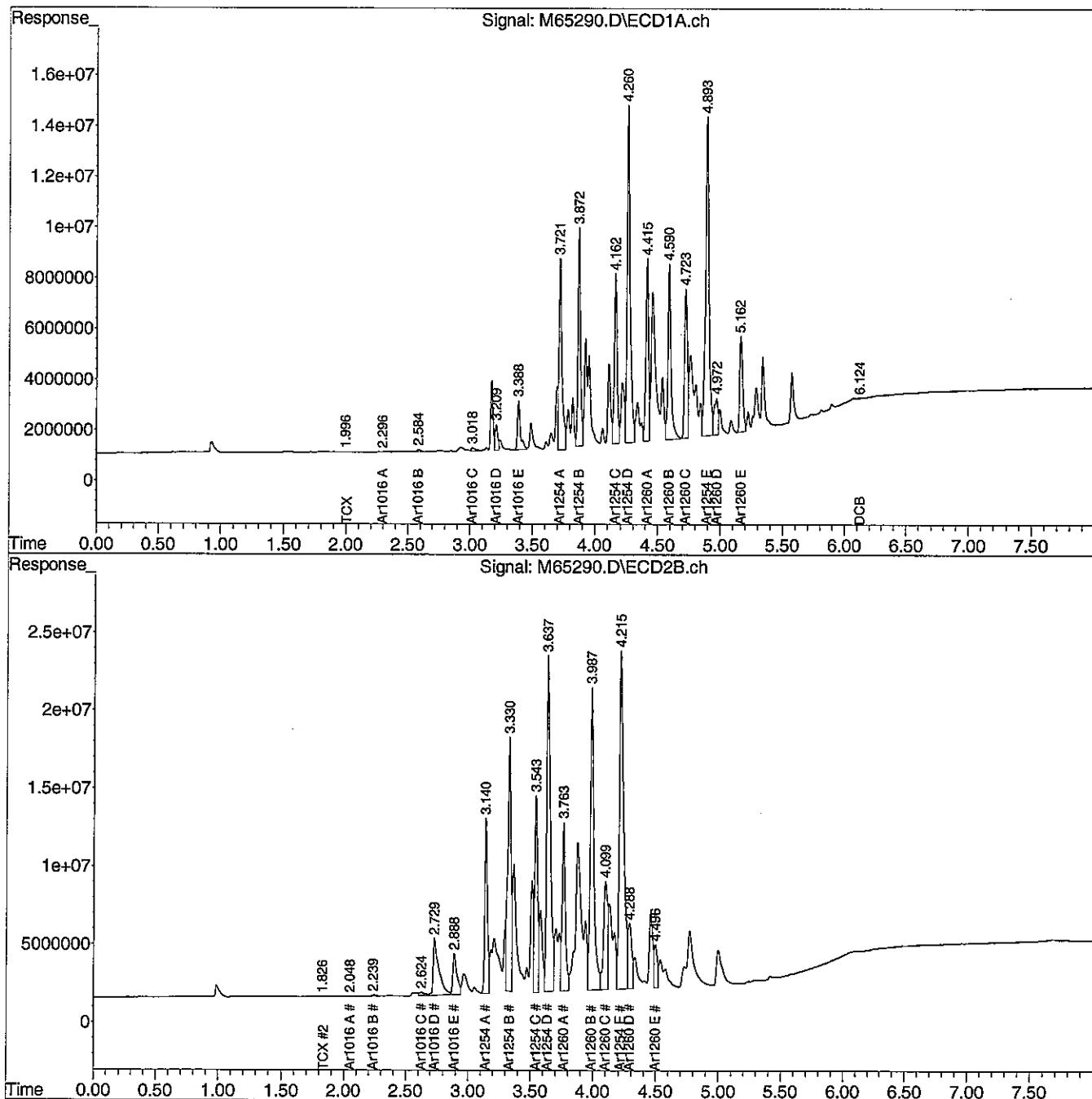
* Values outside QC limits

Comments: _____

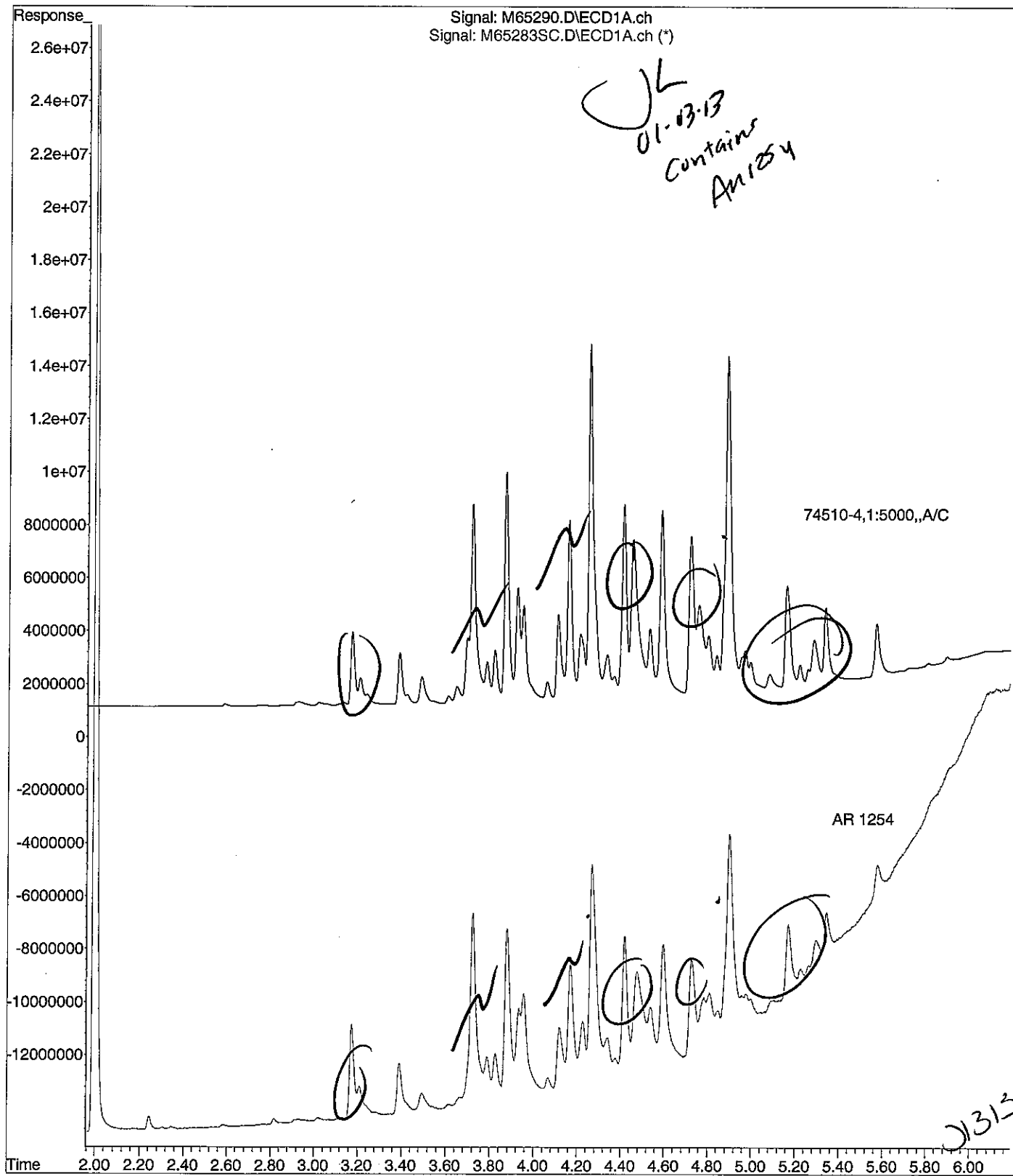
Data Path : C:\msdchem\1\DATA\010213-M\
Data File : M65290.D
Signal(s) : Signal #1: ECD1A.ch Signal #2: ECD2B.ch
Acq On : 2 Jan 2013 5:39 pm
Operator : JK
Sample : 74510-4,1:5000,,A/C
Misc : SOIL
ALS Vial : 12 Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Jan 03 08:51:35 2013
Quant Method : C:\msdchem\1\METHODS\PCB122612.M
Quant Title : SW-846 METHOD 8082 Aroclor 1016/1260/1254
QLast Update : Wed Jan 02 21:46:18 2013
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 2 uL
Signal #1 Phase : STX-CLPPesticides Signal #2 Phase: STX-CLPPesticides
Signal #1 Info : 30 m x 0.25mm x 0 Signal #2 Info : 30 m x 0.25mm x 0.25 um



File :C:\msdchem\1\DATA\010213-M\M65290.D
Operator : JK
Acquired : 2 Jan 2013 5:39 pm using AcqMethod PCB.M
Instrument : Instrument M
Sample Name: 74510-4,1:5000,,A/C
Misc Info : SOIL
Vial Number: 12



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SAMPLE DATA

CLIENT SAMPLE ID

Project Name: Mass College of Liberal Arts
Project Number: 226296
Field Sample ID: BH-CBK-005

Lab Sample ID: 74510-5
Matrix: Solid
Percent Solid: 100
Dilution Factor: 180
Collection Date: 12/17/12
Lab Receipt Date: 12/18/12
Extraction Date: 12/26/12
Analysis Date: 01/02/13

PCB ANALYTICAL RESULTS

COMPOUND	Quantitation Limit $\mu\text{g/kg}$	Results $\mu\text{g/kg}$
PCB-1016	5940	U
PCB-1221	5940	U
PCB-1232	5940	U
PCB-1242	5940	U
PCB-1248	5940	U
PCB-1254	5940	12200
PCB-1260	5940	U
PCB-1262	5940	U
PCB-1268	5940	U
<u>Surrogate Standard Recovery</u>		
2,4,5,6-Tetrachloro-m-xylene	104	%
Decachlorobiphenyl	72	%
U=Undetected J=Estimated E=Exceeds Calibration Range B=Detected in Blank		

METHODOLOGY: Sample analysis conducted according to Test Methods for Evaluating Solid Waste, SW-846 Method 8082A.
Sample preparation conducted according to Test Methods for Evaluating Solid Waste, SW-846 Method 3540C.
Sample cleanup was conducted according to SW-846 Method 3665A.

COMMENTS: Results are expressed on a dry weight basis.

PCB EXT Report

Authorized signature



PCB
COLUMN RELATIVE PERCENT DIFFERENCE

Instrument ID: M	SDG: 74510
GC Column #1: STX-CLPesticides I	Sample: 74510-5,1:20,,A/C
Column ID: 0.25 mm	Data File: M65291.D
GC Column #2: STX-CLPesticides II	Dilution Factor: 180.2
Column ID: 0.25 mm	

Column #1		Column #2	
COMPOUND	SAMPLE RESULT (ug/kg)	SAMPLE RESULT (ug/kg)	RPD
PCB 1254	12246	11010	10.6

Column to be used to flag RPD values greater than QC limit of 40%

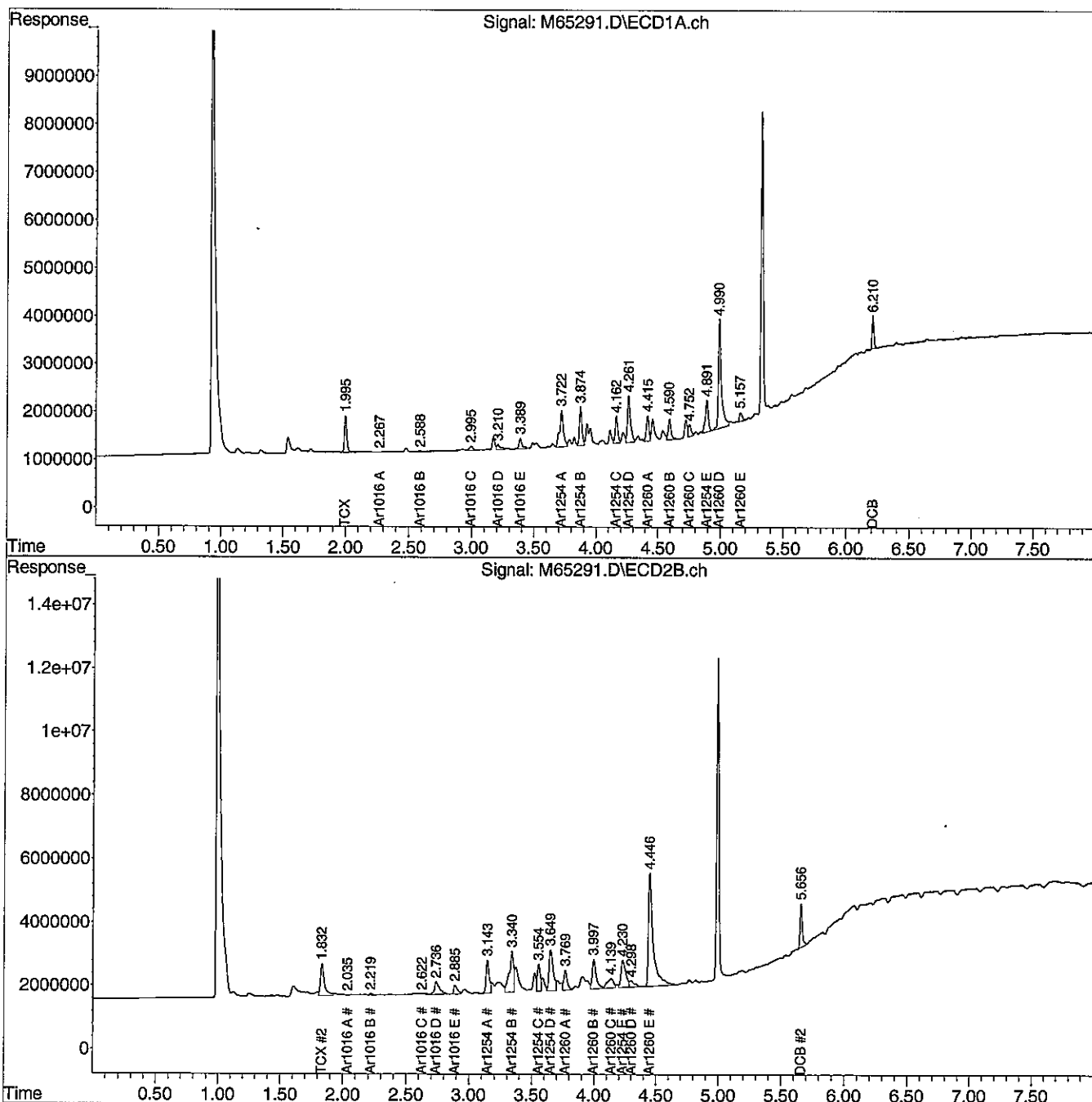
* Values outside QC limits

Comments: _____

Data Path : C:\msdchem\1\DATA\010213-M\
Data File : M65291.D
Signal(s) : Signal #1: ECD1A.ch Signal #2: ECD2B.ch
Acq On : 2 Jan 2013 5:49 pm
Operator : JK
Sample : 74510-5,1:20,,A/C
Misc : SOIL
ALS Vial : 13 Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Jan 03 08:39:52 2013
Quant Method : C:\msdchem\1\METHODS\PCB122612.M
Quant Title : SW-846 METHOD 8082 Aroclor 1016/1260/1254
QLast Update : Wed Jan 02 21:46:18 2013
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 2 uL
Signal #1 Phase : STX-CLPPesticides Signal #2 Phase: STX-CLPPesticides
Signal #1 Info : 30 m x 0.25mm x 0 Signal #2 Info : 30 m x 0.25mm x 0.25 um



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SAMPLE DATA

CLIENT SAMPLE ID

Project Name: Mass College of Liberal Arts
Project Number: 226296
Field Sample ID: BH-CBK-006

Lab Sample ID: 74510-6
Matrix: Solid
Percent Solid: 100
Dilution Factor: 1210
Collection Date: 12/17/12
Lab Receipt Date: 12/18/12
Extraction Date: 12/26/12
Analysis Date: 01/02/13

PCB ANALYTICAL RESULTS

COMPOUND	Quantitation Limit $\mu\text{g/kg}$	Results $\mu\text{g/kg}$
PCB-1016	39900	U
PCB-1221	39900	U
PCB-1232	39900	U
PCB-1242	39900	U
PCB-1248	39900	U
PCB-1254	39900	563000
PCB-1260	39900	U
PCB-1262	39900	U
PCB-1268	39900	U

Surrogate Standard Recovery

2,4,5,6-Tetrachloro-m-xylene * %
Decachlorobiphenyl * %

U=Undetected J=Estimated E=Exceeds Calibration Range B=Detected in Blank

METHODOLOGY: Sample analysis conducted according to Test Methods for Evaluating Solid Waste, SW-846 Method 8082A.
Sample preparation conducted according to Test Methods for Evaluating Solid Waste, SW-846 Method 3540C.
Sample cleanup was conducted according to SW-846 Method 3665A.

COMMENTS: Results are expressed on a dry weight basis.
* The surrogates were diluted out.



PCB
COLUMN RELATIVE PERCENT DIFFERENCE

Instrument ID: M	SDG: 74510
GC Column #1: STX-CLPesticides I	Sample: 74510-6,1:200,,A/C
Column ID: 0.25 mm	Data File: M65292.D
GC Column #2: STX-CLPesticides II	Dilution Factor: 1206.5
Column ID: 0.25 mm	

COMPOUND	Column #1	Column #2		
	SAMPLE RESULT (ug/kg)	SAMPLE RESULT (ug/kg)	RPD	#
PCB 1254	563479	552299	2.0	

Column to be used to flag RPD values greater than QC limit of 40%

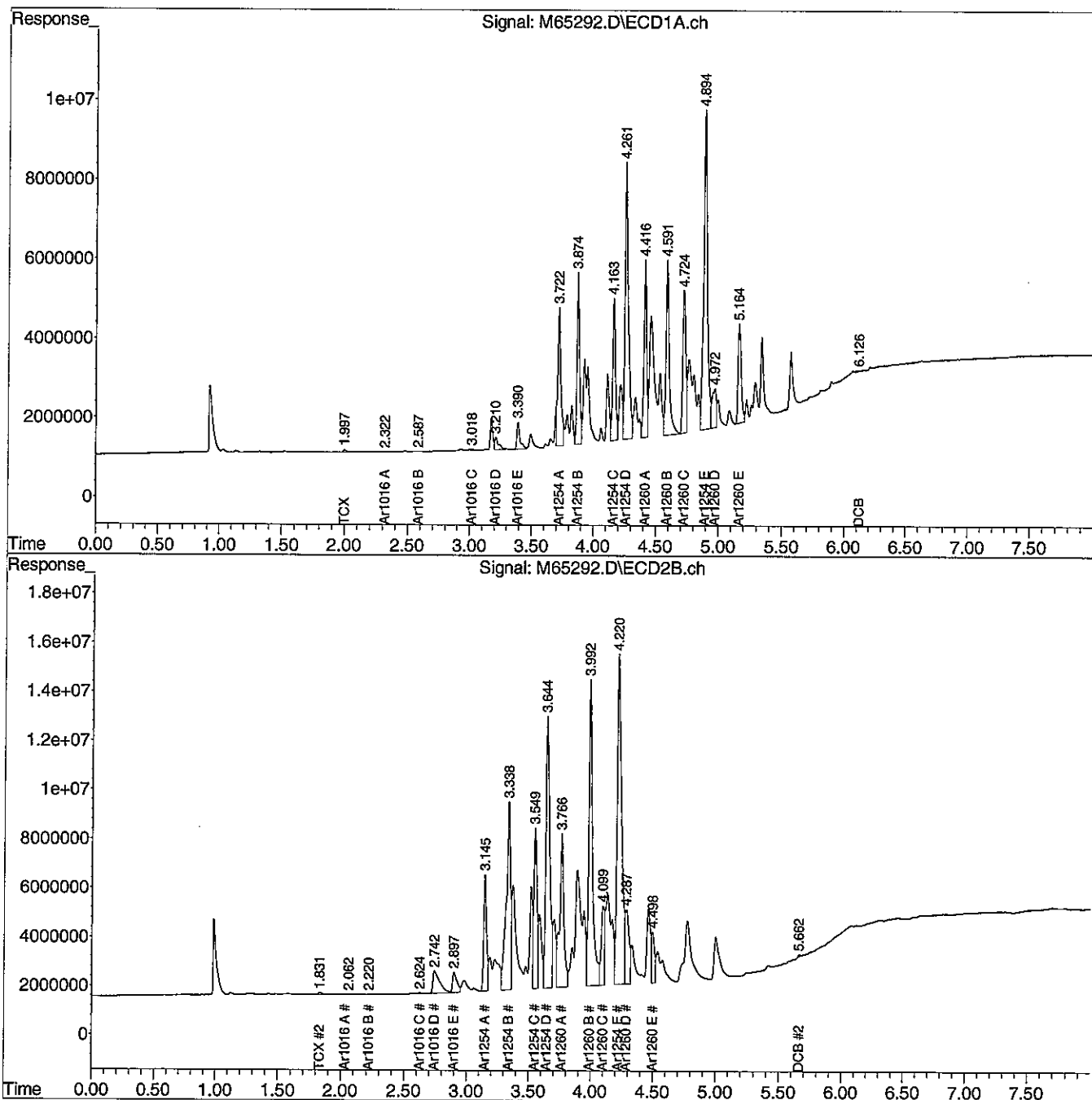
* Values outside QC limits

Comments: _____

Data Path : C:\msdchem\1\DATA\010213-M\
Data File : M65292.D
Signal(s) : Signal #1: ECD1A.ch Signal #2: ECD2B.ch
Acq On : 2 Jan 2013 5:59 pm
Operator : JK
Sample : 74510-6,1:200,,A/C
Misc : SOIL
ALS Vial : 14 Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Jan 03 08:54:03 2013
Quant Method : C:\msdchem\1\METHODS\PCB122612.M
Quant Title : SW-846 METHOD 8082 Aroclor 1016/1260/1254
QLast Update : Wed Jan 02 21:46:18 2013
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 2 uL
Signal #1 Phase : STX-CLPPesticides Signal #2 Phase: STX-CLPPesticides
Signal #1 Info : 30 m x 0.25mm x 0 Signal #2 Info : 30 m x 0.25mm x 0.25 um



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SAMPLE DATA

CLIENT SAMPLE ID

Project Name: Mass College of Liberal Arts
Project Number: 226296
Field Sample ID: BH-CBK-007

Lab Sample ID: 74510-7
Matrix: Solid
Percent Solid: 97
Dilution Factor: 173
Collection Date: 12/17/12
Lab Receipt Date: 12/18/12
Extraction Date: 12/26/12
Analysis Date: 01/02/13

PCB ANALYTICAL RESULTS

COMPOUND	Quantitation Limit $\mu\text{g/kg}$	Results $\mu\text{g/kg}$
PCB-1016	5710	U
PCB-1221	5710	U
PCB-1232	5710	U
PCB-1242	5710	U
PCB-1248	5710	U
PCB-1254	5710	28300
PCB-1260	5710	U
PCB-1262	5710	U
PCB-1268	5710	U
<u>Surrogate Standard Recovery</u>		
2,4,5,6-Tetrachloro-m-xylene	91	%
Decachlorobiphenyl	64	%
U=Undetected J=Estimated E=Exceeds Calibration Range B=Detected in Blank		

METHODOLOGY: Sample analysis conducted according to Test Methods for Evaluating Solid Waste, SW-846 Method 8082A.
Sample preparation conducted according to Test Methods for Evaluating Solid Waste, SW-846 Method 3540C.
Sample cleanup was conducted according to SW-846 Method 3665A.

COMMENTS: Results are expressed on a dry weight basis.



PCB
COLUMN RELATIVE PERCENT DIFFERENCE

Instrument ID: M	SDG: 74510
GC Column #1: STX-CLPesticides I	Sample: 74510-7,1:20,,A/C
Column ID: 0.25 mm	Data File: M65293.D
GC Column #2: STX-CLPesticides II	Dilution Factor: 172.5
Column ID: 0.25 mm	

	Column #1	Column #2		
COMPOUND	SAMPLE RESULT (ug/kg)	SAMPLE RESULT (ug/kg)	RPD	#
PCB 1254	28260	26632	5.9	

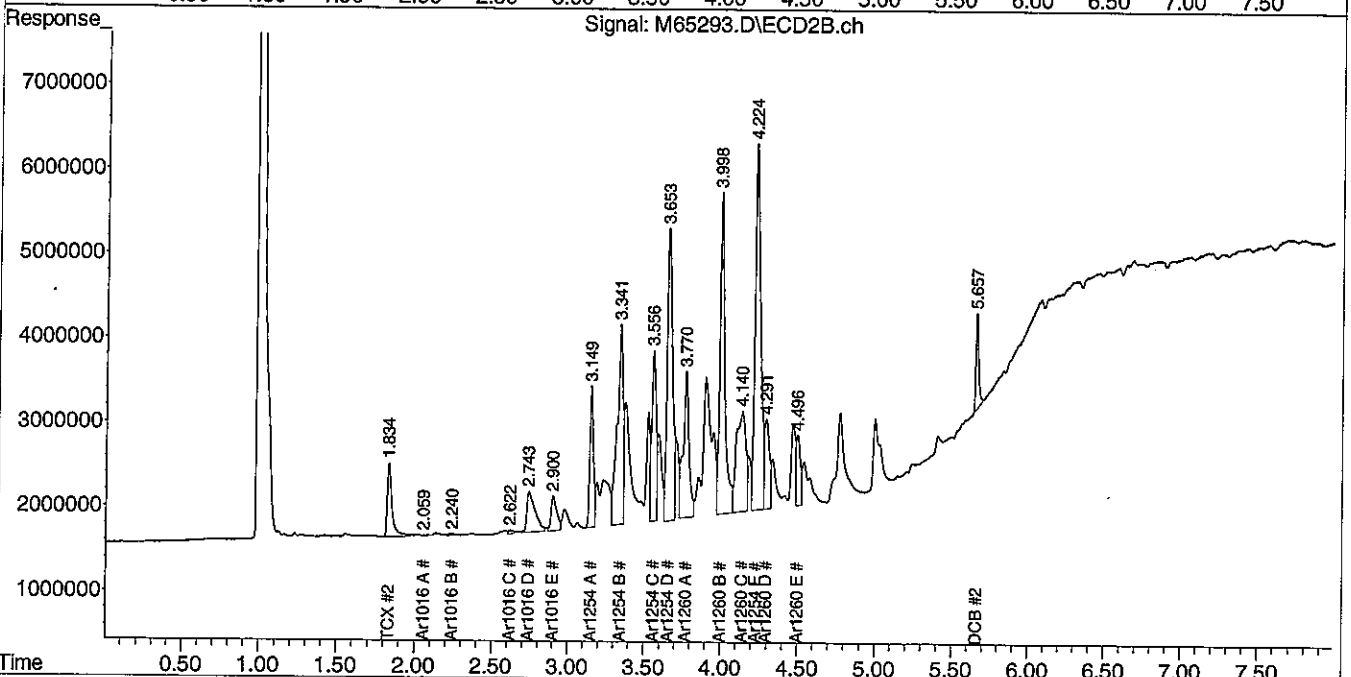
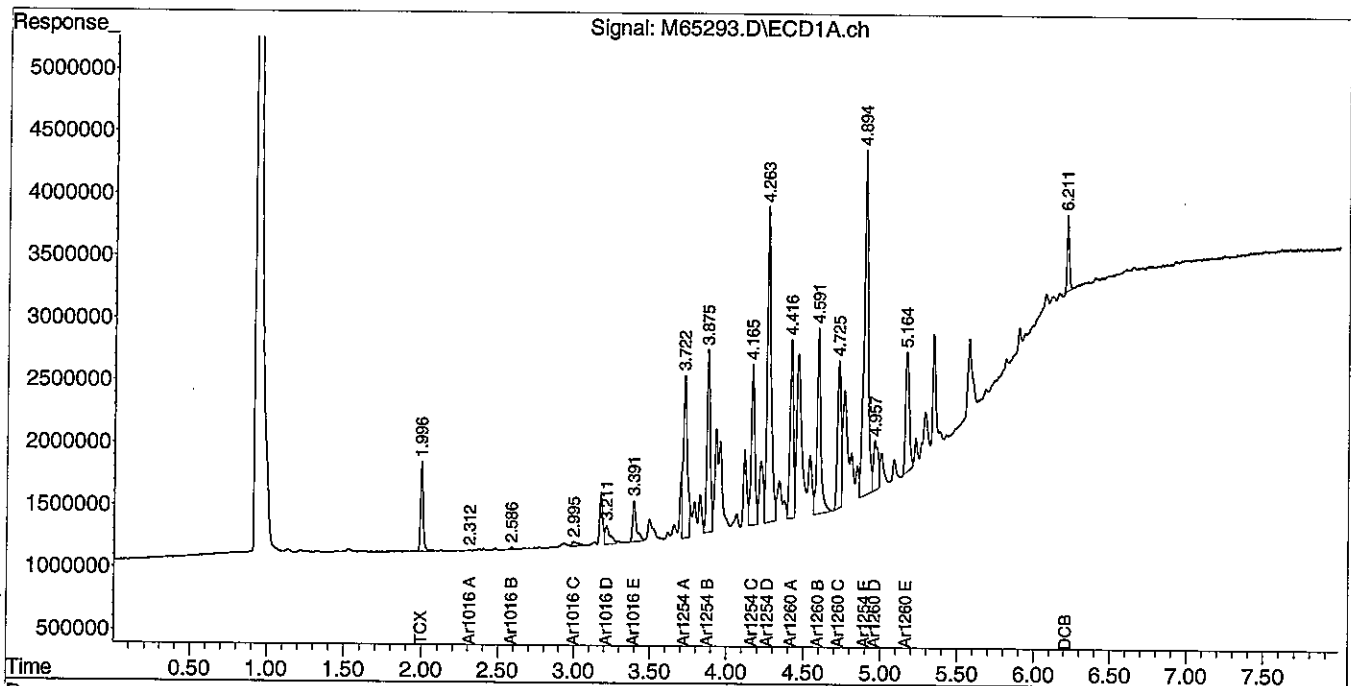
Column to be used to flag RPD values greater than QC limit of 40%
 * Values outside QC limits

Comments: _____

Data Path : C:\msdchem\1\DATA\010213-M\
 Data File : M65293.D
 Signal(s) : Signal #1: ECD1A.ch Signal #2: ECD2B.ch
 Acq On : 2 Jan 2013 6:09 pm
 Operator : JK
 Sample : 74510-7,1:20,,A/C
 Misc : SOIL
 ALS Vial : 15 Sample Multiplier: 1

Integration File signal 1: events.e
 Integration File signal 2: events2.e
 Quant Time: Jan 03 08:54:59 2013
 Quant Method : C:\msdchem\1\METHODS\PCB122612.M
 Quant Title : SW-846 METHOD 8082 Aroclor 1016/1260/1254
 QLast Update : Wed Jan 02 21:46:18 2013
 Response via : Initial Calibration
 Integrator: ChemStation

Volume Inj. : 2 uL
 Signal #1 Phase : STX-CLPPesticides Signal #2 Phase: STX-CLPPesticides
 Signal #1 Info : 30 m x 0.25mm x 0 Signal #2 Info : 30 m x 0.25mm x 0.25 um



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SAMPLE DATA

CLIENT SAMPLE ID

Project Name: Mass College of Liberal Arts
Project Number: 226296
Field Sample ID: BH-CBK-008

Lab Sample ID: 74510-8
Matrix: Solid
Percent Solid: 100
Dilution Factor: 200
Collection Date: 12/17/12
Lab Receipt Date: 12/18/12
Extraction Date: 12/26/12
Analysis Date: 01/02/13

PCB ANALYTICAL RESULTS

COMPOUND	Quantitation Limit $\mu\text{g/kg}$	Results $\mu\text{g/kg}$
PCB-1016	6600	U
PCB-1221	6600	U
PCB-1232	6600	U
PCB-1242	6600	U
PCB-1248	6600	U
PCB-1254	6600	48000
PCB-1260	6600	U
PCB-1262	6600	70500
PCB-1268	6600	U

Surrogate Standard Recovery

2,4,5,6-Tetrachloro-m-xylene 97 %
Decachlorobiphenyl 83 %

U=Undetected J=Estimated E=Exceeds Calibration Range B=Detected in Blank

METHODOLOGY: Sample analysis conducted according to Test Methods for Evaluating Solid Waste, SW-846 Method 8082A.
Sample preparation conducted according to Test Methods for Evaluating Solid Waste, SW-846 Method 3540C.
Sample cleanup was conducted according to SW-846 Method 3665A.

COMMENTS: Results are expressed on a dry weight basis.

PCB EXT Report

Authorized signature



PCB
COLUMN RELATIVE PERCENT DIFFERENCE

Instrument ID: M	SDG: 74510
GC Column #1: STX-CLPesticides I	Sample: 74510-8,1:20,,A/C
Column ID: 0.25 mm	Data File: M65294.D
GC Column #2: STX-CLPesticides II	Dilution Factor: 200.0
Column ID: 0.25 mm	

COMPOUND	Column #1	Column #2	RPD		#
	SAMPLE RESULT (ug/kg)	SAMPLE RESULT (ug/kg)			
PCB 1254	48035	41896	13.7		
PCB 1262	70504	58933	17.9		

Column to be used to flag RPD values greater than QC limit of 40%

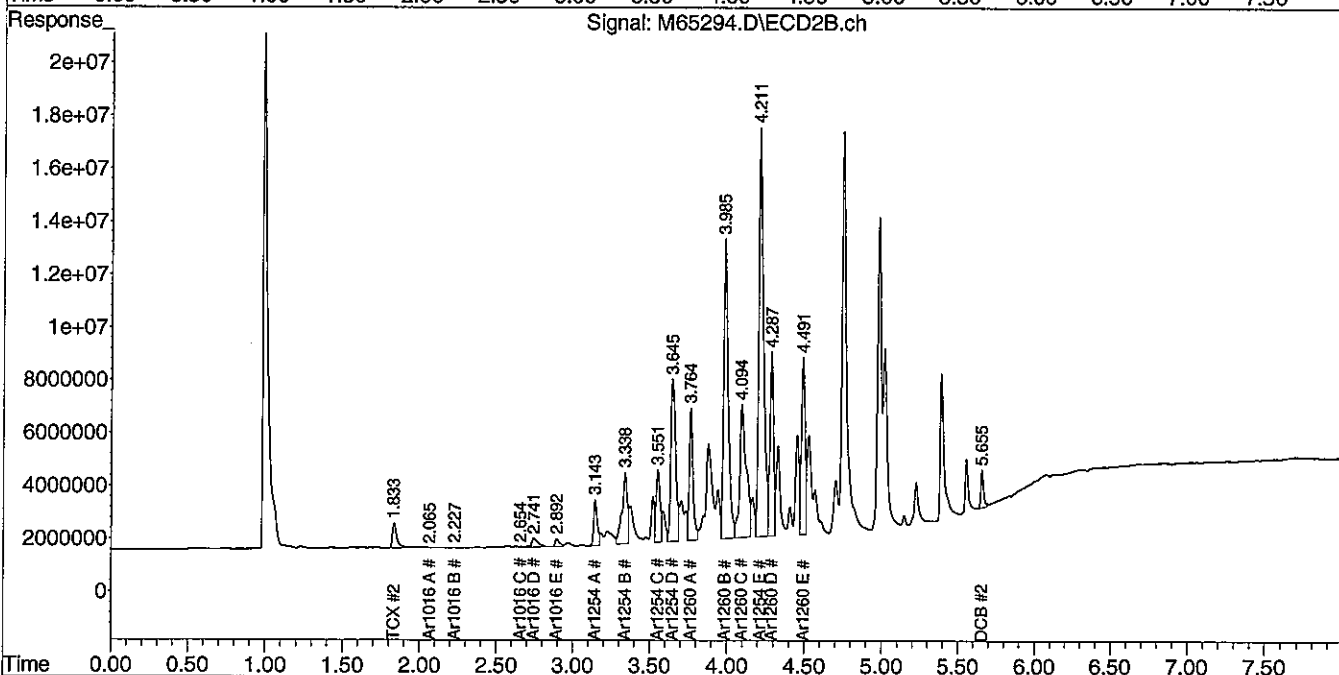
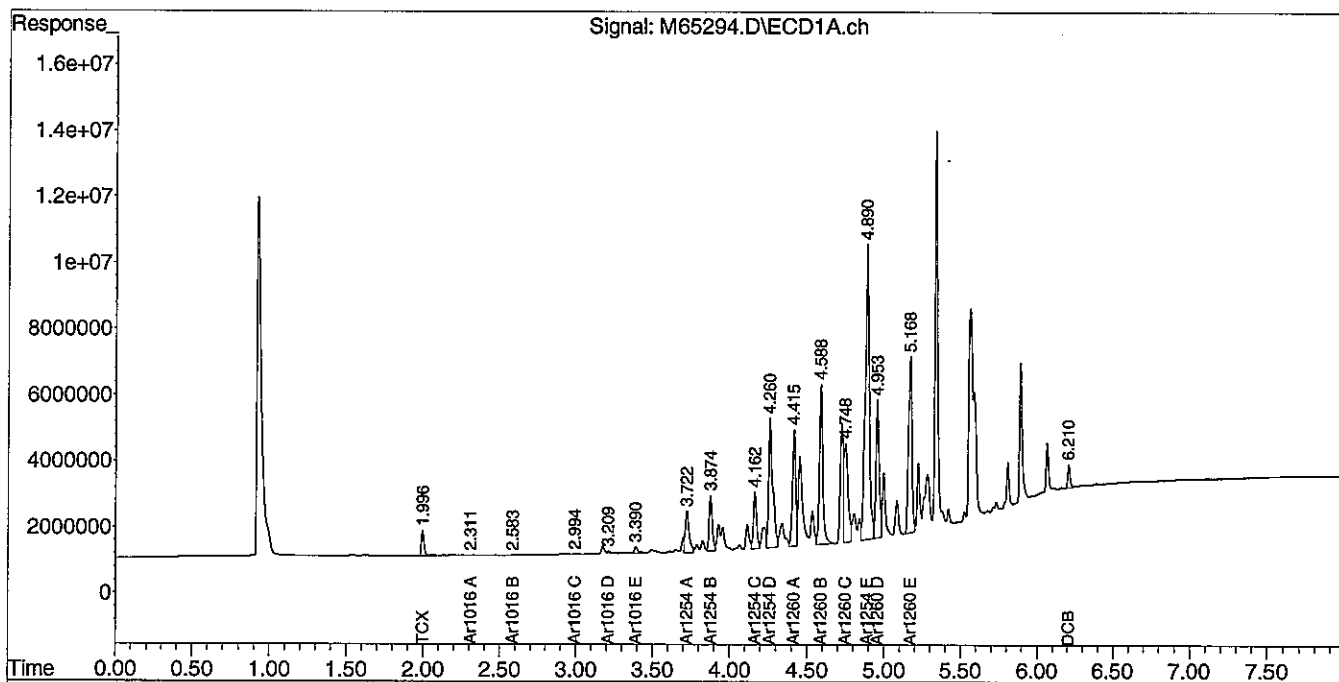
* Values outside QC limits

Comments: _____

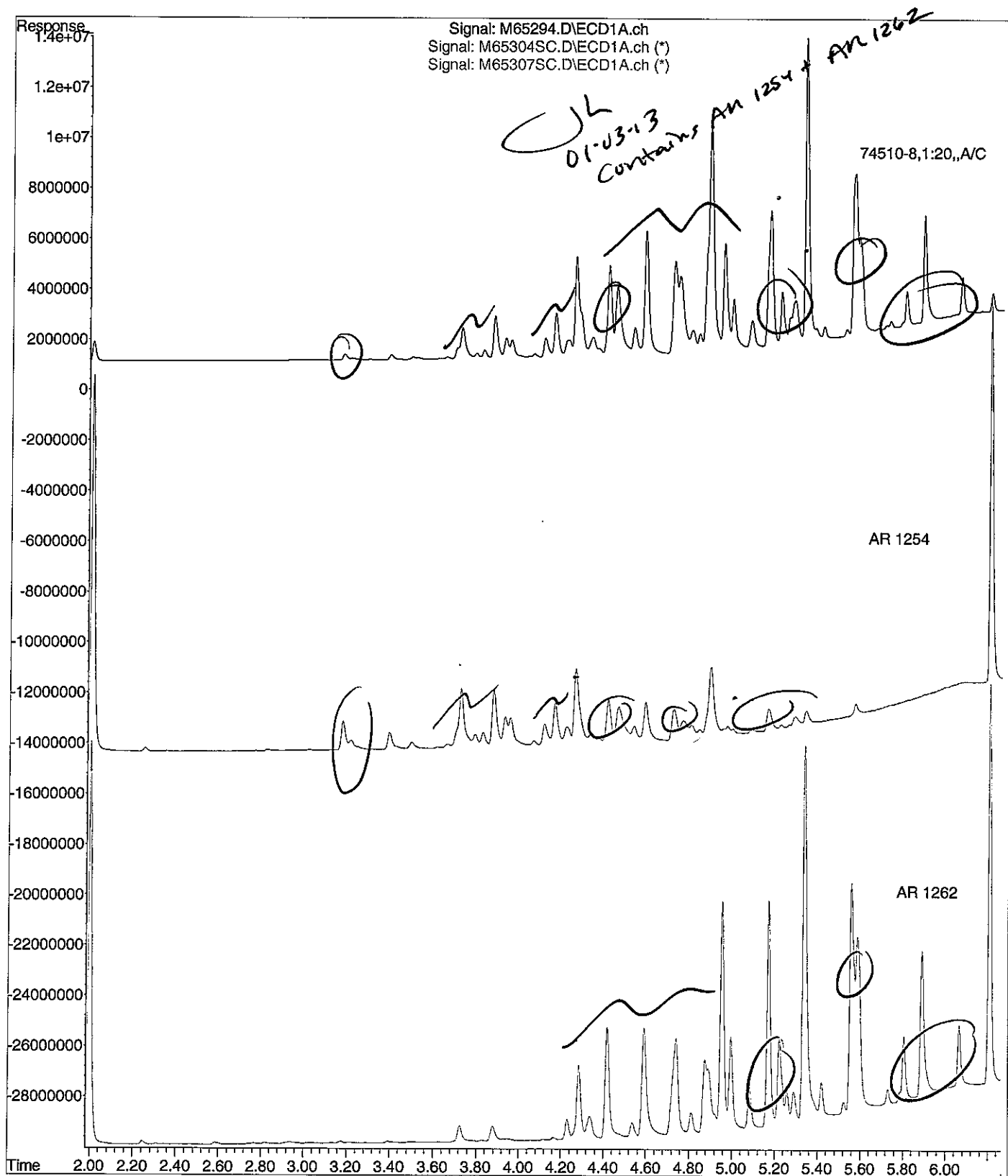
Data Path : C:\msdchem\1\DATA\010213-M\
Data File : M65294.D
Signal(s) : Signal #1: ECD1A.ch Signal #2: ECD2B.ch
Acq On : 2 Jan 2013 6:19 pm
Operator : JK
Sample : 74510-8,1:20,,A/C
Misc : SOIL
ALS Vial : 16 Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Jan 03 09:09:30 2013
Quant Method : C:\msdchem\1\METHODS\PCB122612.M
Quant Title : SW-846 METHOD 8082 Aroclor 1016/1260/1254
QLast Update : Wed Jan 02 21:46:18 2013
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 2 uL
Signal #1 Phase : STX-CLPPesticides Signal #2 Phase: STX-CLPPesticides
Signal #1 Info : 30 m x 0.25mm x 0.25 um Signal #2 Info : 30 m x 0.25mm x 0.25 um



File : C:\msdchem\1\DATA\010213-M\M65294.D
Operator : JK
Acquired : 2 Jan 2013 6:19 pm using AcqMethod PCB.M
Instrument : Instrument M
Sample Name: 74510-8,1:20,,A/C
Misc Info : SOIL
Vial Number: 16



01313

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January 3, 2013

SAMPLE DATA

CLIENT SAMPLE ID

Project Name: Mass College of Liberal Arts
Project Number: 226296
Field Sample ID: BH-CBK-009

Lab Sample ID: 74510-9
Matrix: Solid
Percent Solid: 100
Dilution Factor: 182
Collection Date: 12/17/12
Lab Receipt Date: 12/18/12
Extraction Date: 12/26/12
Analysis Date: 01/02/13

PCB ANALYTICAL RESULTS

COMPOUND	Quantitation Limit $\mu\text{g/kg}$	Results $\mu\text{g/kg}$
PCB-1016	6010	U
PCB-1221	6010	U
PCB-1232	6010	U
PCB-1242	6010	U
PCB-1248	6010	U
PCB-1254	6010	14800
PCB-1260	6010	U
PCB-1262	6010	U
PCB-1268	6010	U

Surrogate Standard Recovery

2,4,5,6-Tetrachloro-m-xylene 108 %
Decachlorobiphenyl 81 %

U=Undetected J=Estimated E=Exceeds Calibration Range B=Detected in Blank

METHODOLOGY: Sample analysis conducted according to Test Methods for Evaluating Solid Waste, SW-846 Method 8082A.
Sample preparation conducted according to Test Methods for Evaluating Solid Waste, SW-846 Method 3540C.
Sample cleanup was conducted according to SW-846 Method 3665A.

COMMENTS: Results are expressed on a dry weight basis.



PCB
COLUMN RELATIVE PERCENT DIFFERENCE

Instrument ID: M
GC Column #1: STX-CLPesticides I
Column ID: 0.25 mm
GC Column #2: STX-CLPesticides II
Column ID: 0.25 mm

SDG: 74510
Sample: 74510-9,1:20,,A/C
Data File: M65295.D
Dilution Factor: 181.8

COMPOUND	Column #1	Column #2		
	SAMPLE RESULT (ug/kg)	SAMPLE RESULT (ug/kg)	RPD	#
PCB 1254	14787	13387	9.9	

Column to be used to flag RPD values greater than QC limit of 40%

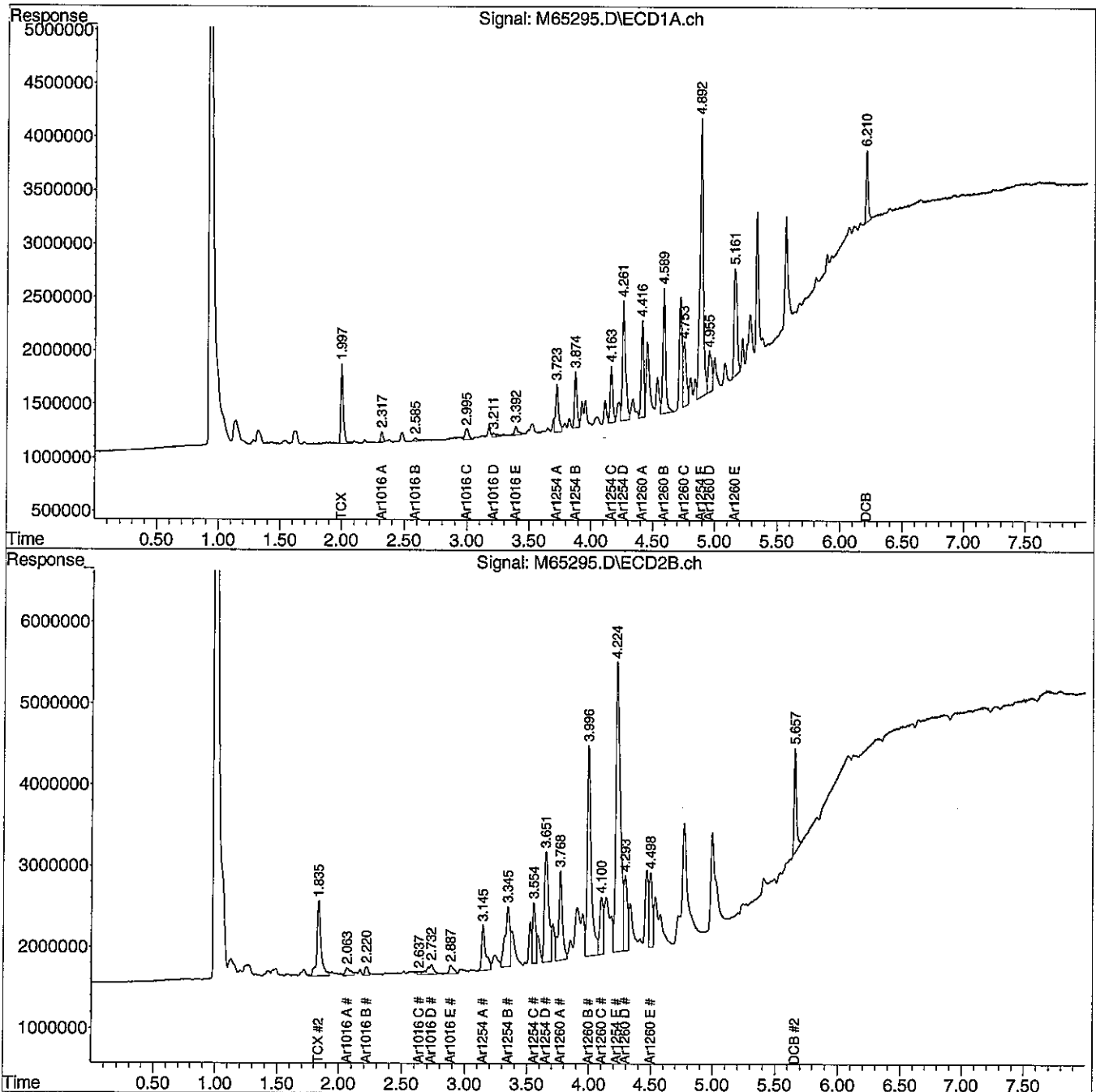
* Values outside QC limits

Comments: _____

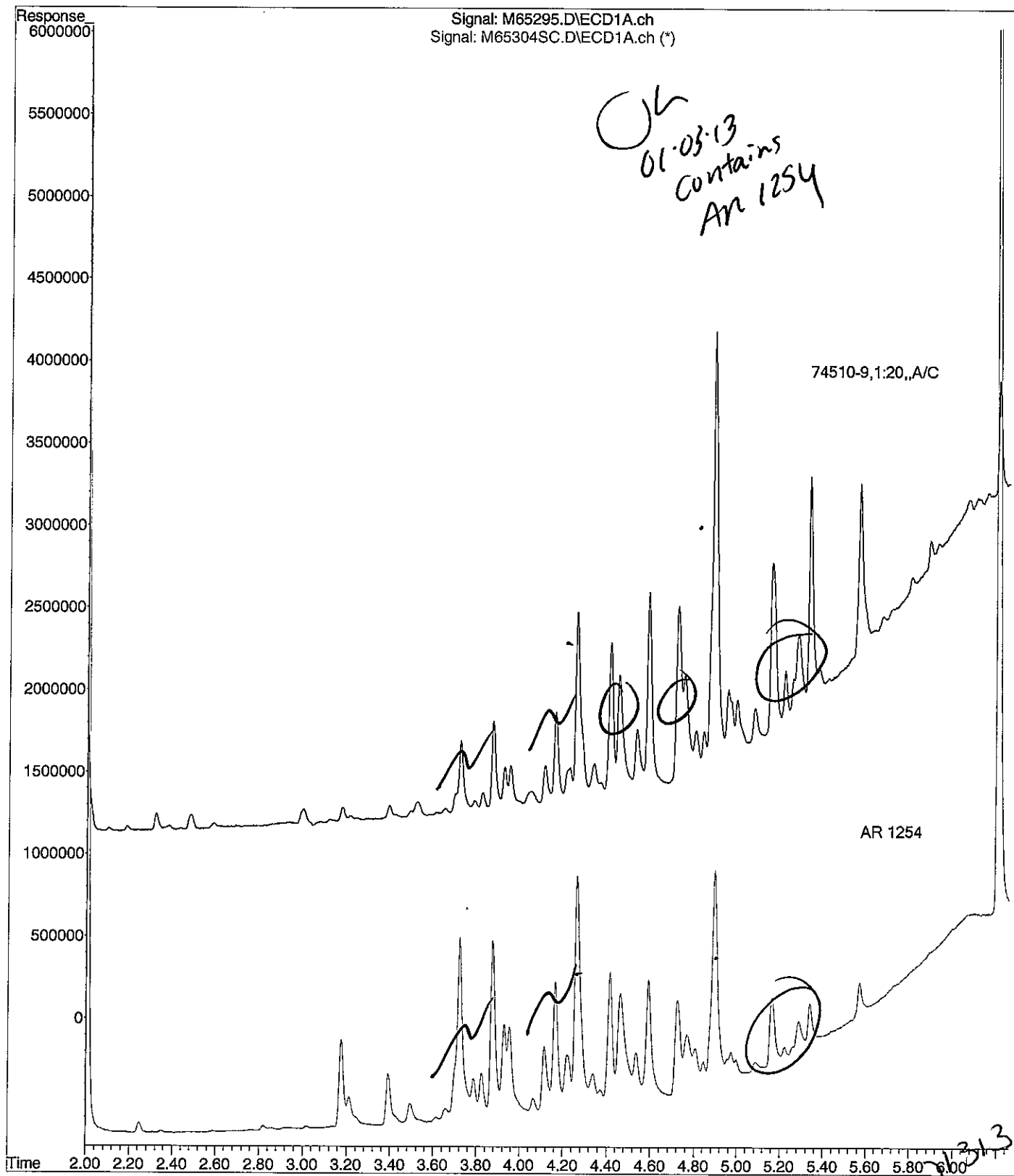
Data Path : C:\msdchem\1\DATA\010213-M\
Data File : M65295.D
Signal(s) : Signal #1: ECD1A.ch Signal #2: ECD2B.ch
Acq On : 2 Jan 2013 6:29 pm
Operator : JK
Sample : 74510-9,1:20,,A/C
Misc : SOIL
ALS Vial : 17 Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Jan 03 09:13:42 2013
Quant Method : C:\msdchem\1\METHODS\PCB122612.M
Quant Title : SW-846 METHOD 8082 Aroclor 1016/1260/1254
QLast Update : Wed Jan 02 21:46:18 2013
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 2 uL
Signal #1 Phase : STX-CLPPesticides Signal #2 Phase: STX-CLPPesticides
Signal #1 Info : 30 m x 0.25mm x 0 Signal #2 Info : 30 m x 0.25mm x 0.25 um



File : G:\msdchem\1\DATA\010213-M\M65295.D
Operator : JK
Acquired : 2 Jan 2013 6:29 pm using AcqMethod PCB.M
Instrument : Instrument M
Sample Name: 74510-9,1:20,,A/C
Misc Info : SOIL
Vial Number: 17



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January 3, 2013

SAMPLE DATA

CLIENT SAMPLE ID

Project Name: Mass College of Liberal Arts
Project Number: 226296
Field Sample ID: BH-CBK-010

Lab Sample ID: 74510-10
Matrix: Solid
Percent Solid: 95
Dilution Factor: 109
Collection Date: 12/17/12
Lab Receipt Date: 12/18/12
Extraction Date: 12/26/12
Analysis Date: 01/02/13

PCB ANALYTICAL RESULTS

COMPOUND	Quantitation Limit $\mu\text{g/kg}$	Results $\mu\text{g/kg}$
PCB-1016	3600	U
PCB-1221	3600	U
PCB-1232	3600	U
PCB-1242	3600	U
PCB-1248	3600	U
PCB-1254	3600	81200
PCB-1260	3600	53000
PCB-1262	3600	U
PCB-1268	3600	U
<u>Surrogate Standard Recovery</u>		
2,4,5,6-Tetrachloro-m-xylene	88	%
Decachlorobiphenyl	80	%
U=Undetected J=Estimated E=Exceeds Calibration Range B=Detected in Blank		

METHODOLOGY: Sample analysis conducted according to Test Methods for Evaluating Solid Waste, SW-846 Method 8082A.
Sample preparation conducted according to Test Methods for Evaluating Solid Waste, SW-846 Method 3540C.
Sample cleanup was conducted according to SW-846 Method 3665A.

COMMENTS: Results are expressed on a dry weight basis.



PCB
COLUMN RELATIVE PERCENT DIFFERENCE

Instrument ID: M
GC Column #1: STX-CLPesticides I
Column ID: 0.25 mm
GC Column #2: STX-CLPesticides II
Column ID: 0.25 mm

SDG: 74510
Sample: 74510-10,1:20,,A/C
Data File: M65296.D
Dilution Factor: 108.6

Column #1		Column #2		#
COMPOUND	SAMPLE RESULT (ug/kg)	SAMPLE RESULT (ug/kg)	RPD	
PCB 1260	52655	52978	0.6	
PCB 1254	75533	81238	7.3	

Column to be used to flag RPD values greater than QC limit of 40%

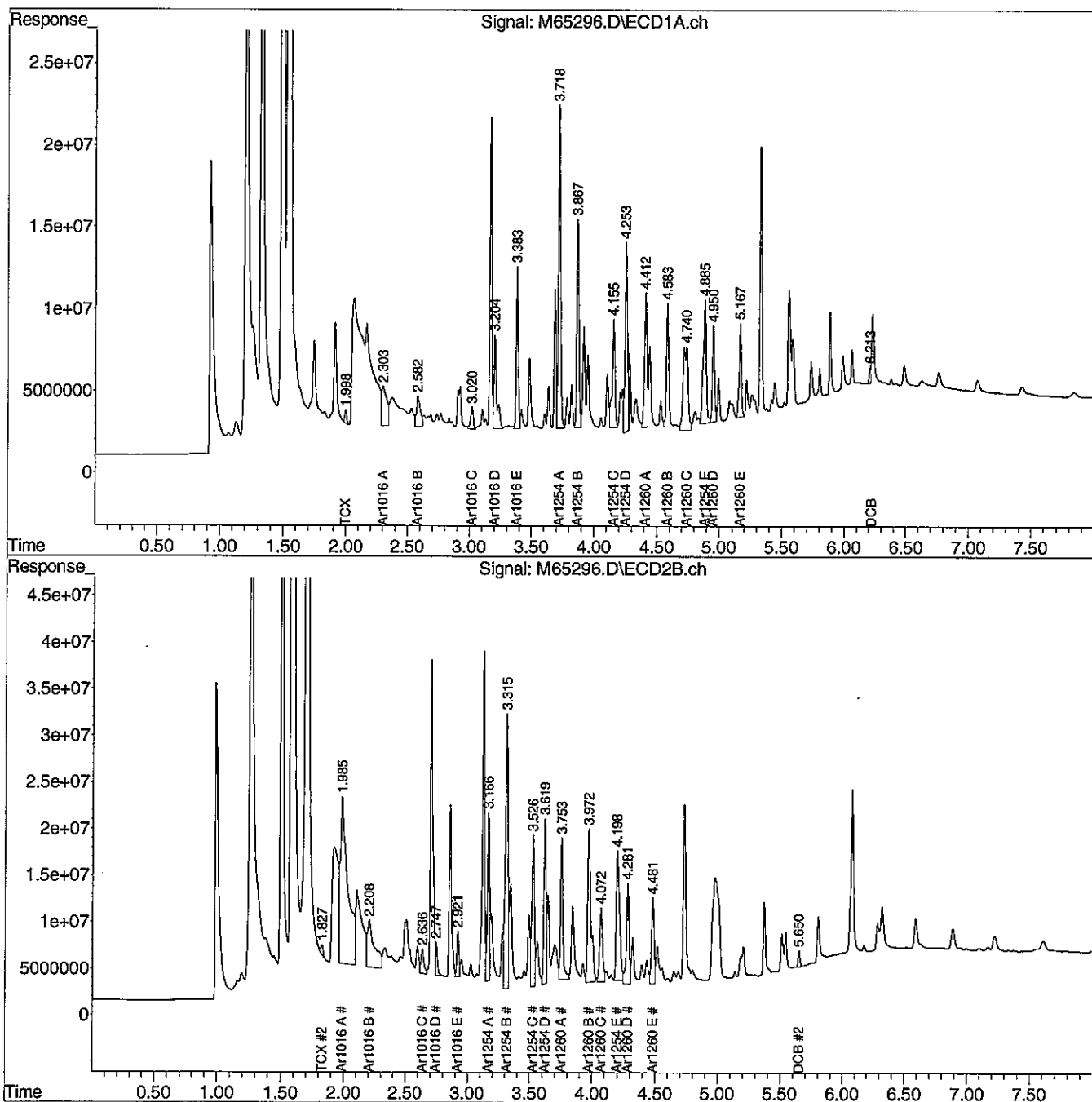
* Values outside QC limits

Comments: _____

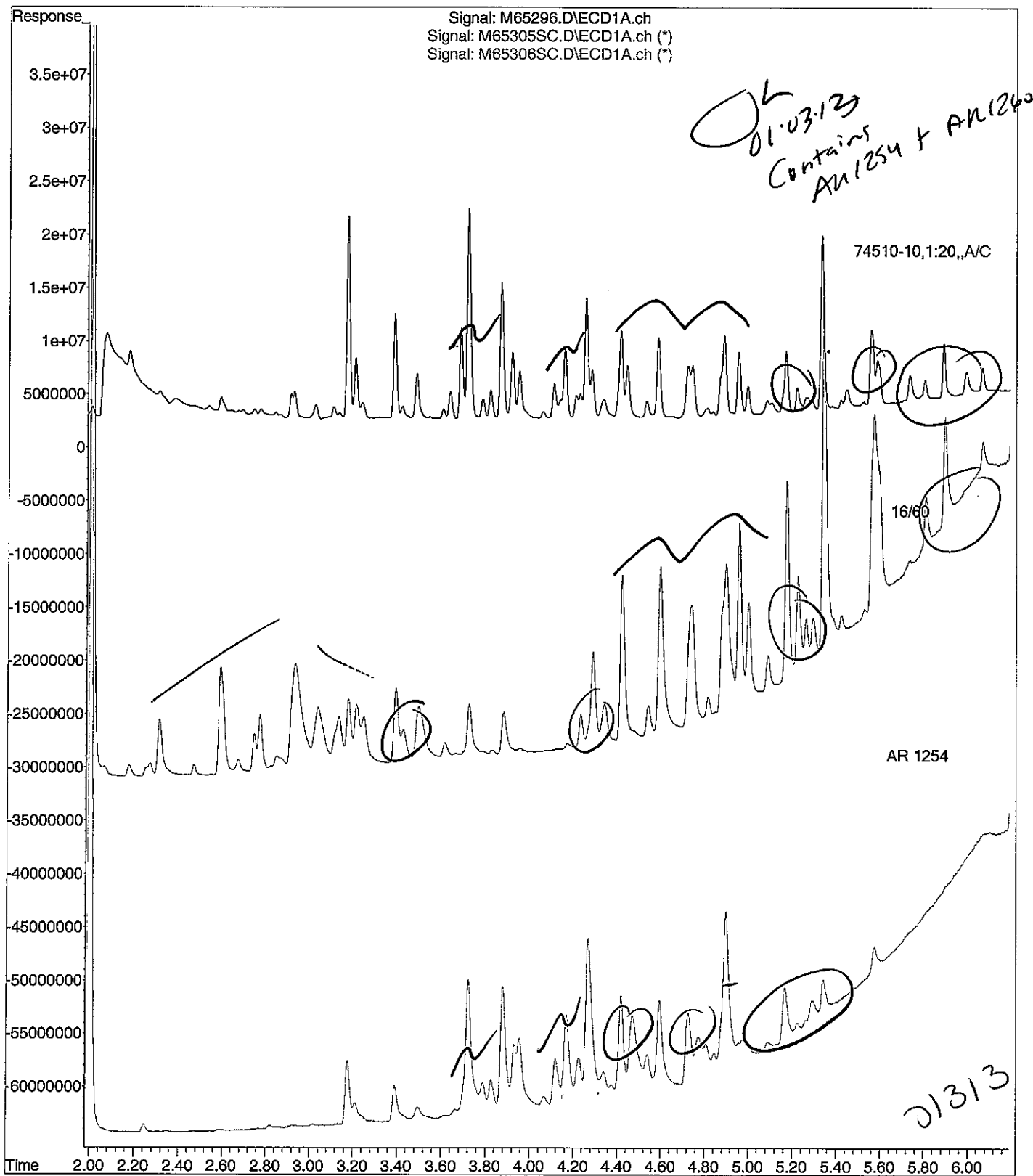
Data Path : C:\msdchem\1\DATA\010213-M\
Data File : M65296.D
Signal(s) : Signal #1: ECD1A.ch Signal #2: ECD2B.ch
Acq On : 2 Jan 2013 6:39 pm
Operator : JK
Sample : 74510-10,1:20,,A/C
Misc : SOIL
ALS Vial : 18 Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Jan 03 09:27:06 2013
Quant Method : C:\msdchem\1\METHODS\PCB122612.M
Quant Title : SW-846 METHOD 8082 Aroclor 1016/1260/1254
QLast Update : Wed Jan 02 21:46:18 2013
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 2 uL
Signal #1 Phase : STX-CLPPesticides Signal #2 Phase: STX-CLPPesticides
Signal #1 Info : 30 m x 0.25mm x 0.25 um Signal #2 Info : 30 m x 0.25mm x 0.25 um



File : C:\msdchem\1\DATA\010213-M\M65296.D
Operator : JK
Acquired : 2 Jan 2013 6:39 pm using AcqMethod PCB.M
Instrument : Instrument M
Sample Name: 74510-10,1:20,,A/C
Misc Info : SOIL
Vial Number: 18



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SAMPLE DATA

CLIENT SAMPLE ID

Project Name: Mass College of Liberal Arts
Project Number: 226296
Field Sample ID: BH-CBK-011

Lab Sample ID: 74510-11
Matrix: Solid
Percent Solid: 100
Dilution Factor: 114
Collection Date: 12/17/12
Lab Receipt Date: 12/18/12
Extraction Date: 12/26/12
Analysis Date: 01/02/13

PCB ANALYTICAL RESULTS

COMPOUND	Quantitation Limit $\mu\text{g/kg}$	Results $\mu\text{g/kg}$
PCB-1016	3760	U
PCB-1221	3760	U
PCB-1232	3760	U
PCB-1242	3760	U
PCB-1248	3760	U
PCB-1254	3760	26000
PCB-1260	3760	U
PCB-1262	3760	U
PCB-1268	3760	U
<u>Surrogate Standard Recovery</u>		
2,4,5,6-Tetrachloro-m-xylene	106 %	
Decachlorobiphenyl	85 %	
U=Undetected J=Estimated E=Exceeds Calibration Range B=Detected in Blank		

METHODOLOGY: Sample analysis conducted according to Test Methods for Evaluating Solid Waste, SW-846 Method 8082A.
Sample preparation conducted according to Test Methods for Evaluating Solid Waste, SW-846 Method 3540C.
Sample cleanup was conducted according to SW-846 Method 3665A.

COMMENTS: Results are expressed on a dry weight basis.

COLUMN RELATIVE PERCENT DIFFERENCE

Instrument ID: M

SDG: 74510

GC Column #1: STX-CLPesticides I

Sample: 74510-11,1:20,,A/C

Column ID: 0.25 mm

Data File: M65297.D

GC Column #2: STX-CLPesticides II

Dilution Factor: 113.6

Column ID: 0.25 mm

COMPOUND	Column #1	Column #2		
	SAMPLE RESULT (ug/kg)	SAMPLE RESULT (ug/kg)	RPD	#
PCB 1254	24598	25963	5.4	

Column to be used to flag RPD values greater than QC limit of 40%

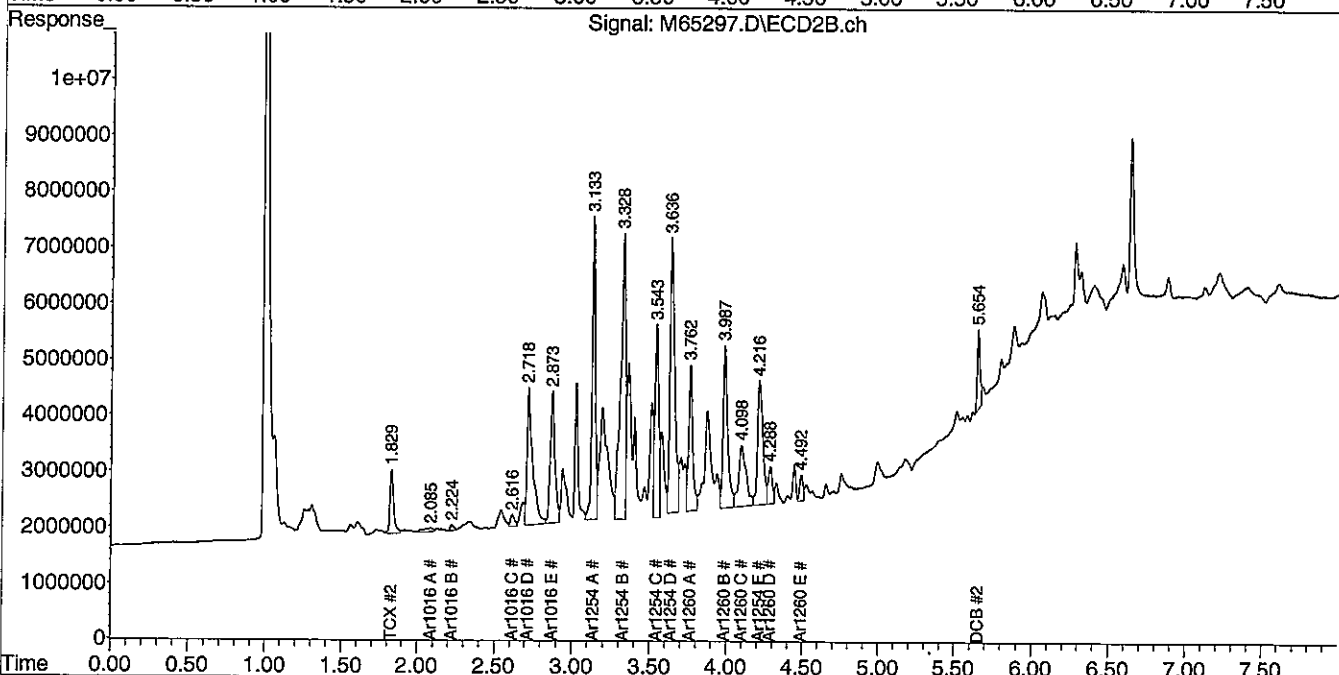
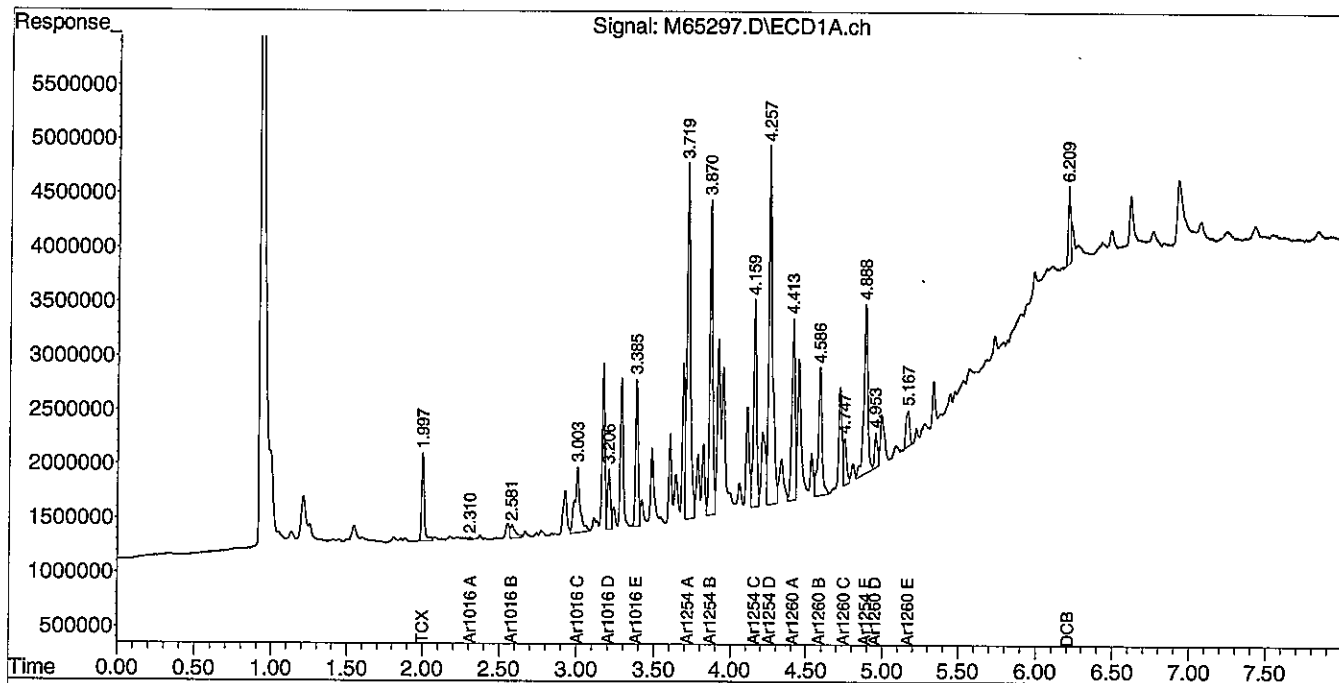
* Values outside QC limits

Comments: _____

Data Path : C:\msdchem\1\DATA\010213-M\
Data File : M65297.D
Signal(s) : Signal #1: ECD1A.ch Signal #2: ECD2B.ch
Acq On : 2 Jan 2013 6:49 pm
Operator : JK
Sample : 74510-11,1:20,,A/C
Misc : SOIL
ALS Vial : 19 Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Jan 03 09:32:25 2013
Quant Method : C:\msdchem\1\METHODS\PCB122612.M
Quant Title : SW-846 METHOD 8082 Aroclor 1016/1260/1254
QLast Update : Wed Jan 02 21:46:18 2013
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 2 uL
Signal #1 Phase : STX-CLPPesticides Signal #2 Phase: STX-CLPPesticides
Signal #1 Info : 30 m x 0.25mm x 0 Signal #2 Info : 30 m x 0.25mm x 0.25 um



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January 3, 2013

SAMPLE DATA

CLIENT SAMPLE ID

Project Name: Mass College of Liberal Arts
Project Number: 226296
Field Sample ID: BH-CBK-012

Lab Sample ID: 74510-12
Matrix: Solid
Percent Solid: 97
Dilution Factor: 203
Collection Date: 12/17/12
Lab Receipt Date: 12/18/12
Extraction Date: 12/26/12
Analysis Date: 01/02/13

PCB ANALYTICAL RESULTS

COMPOUND	Quantitation Limit $\mu\text{g/kg}$	Results $\mu\text{g/kg}$
PCB-1016	6700	U
PCB-1221	6700	U
PCB-1232	6700	U
PCB-1242	6700	U
PCB-1248	6700	U
PCB-1254	6700	8420
PCB-1260	6700	U
PCB-1262	6700	U
PCB-1268	6700	U

Surrogate Standard Recovery

2,4,5,6-Tetrachloro-m-xylene 94 %
Decachlorobiphenyl 86 %

U=Undetected J=Estimated E=Exceeds Calibration Range B=Detected in Blank

METHODOLOGY: Sample analysis conducted according to Test Methods for Evaluating Solid Waste, SW-846 Method 8082A.
Sample preparation conducted according to Test Methods for Evaluating Solid Waste, SW-846 Method 3540C.
Sample cleanup was conducted according to SW-846 Method 3665A.

COMMENTS: Results are expressed on a dry weight basis.

PCB EXT Report

Authorized signature



PCB
COLUMN RELATIVE PERCENT DIFFERENCE

Instrument ID: M	SDG: 74510
GC Column #1: STX-CLPesticides I	Sample: 74510-12,1:20,,A/C
Column ID: 0.25 mm	Data File: M65298.D
GC Column #2: STX-CLPesticides II	Dilution Factor: 203.2
Column ID: 0.25 mm	

Column #1		Column #2		
COMPOUND	SAMPLE RESULT (ug/kg)	SAMPLE RESULT (ug/kg)	RPD	#
PCB 1254	8417	7386	13.0	

Column to be used to flag RPD values greater than QC limit of 40%

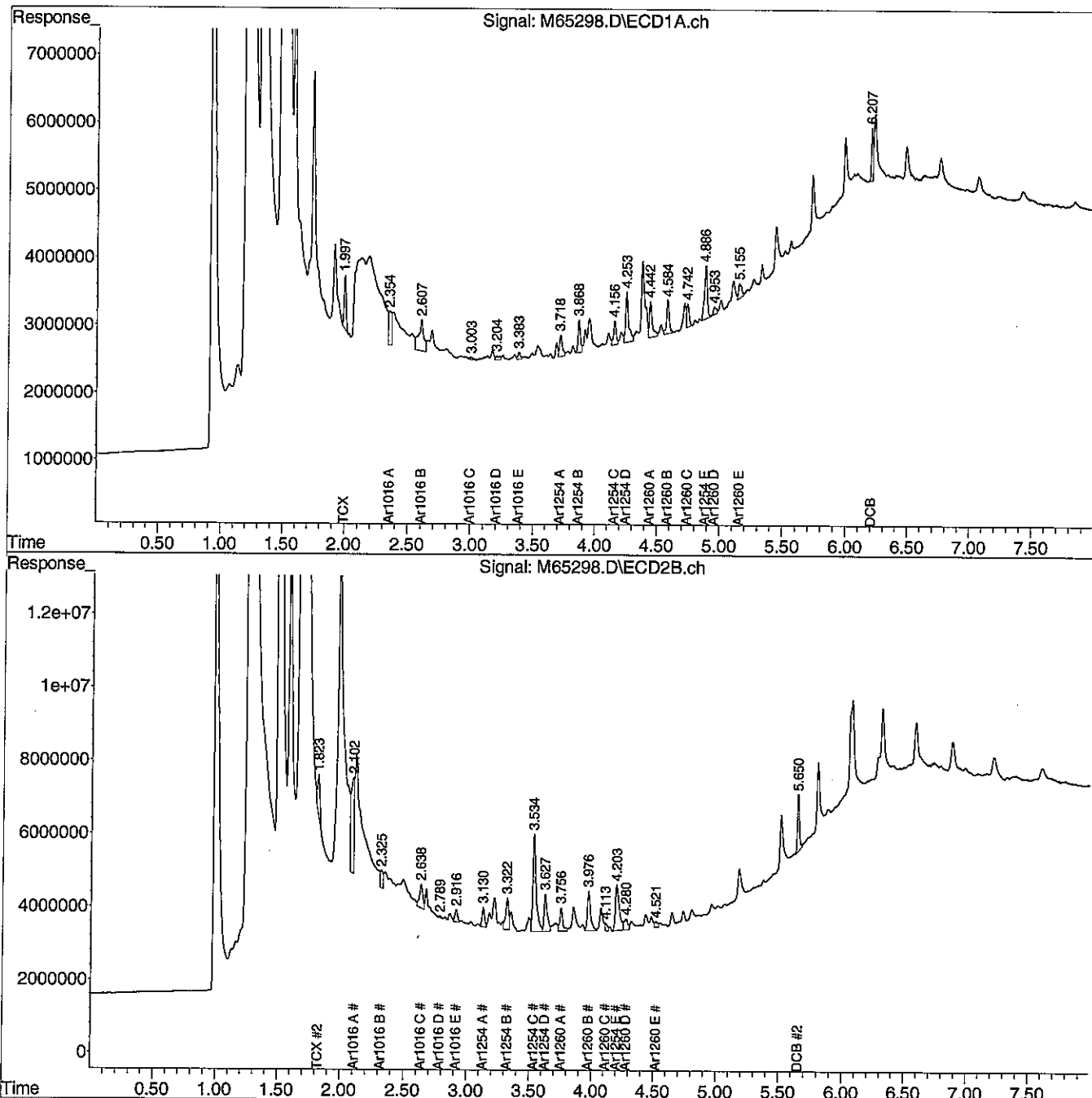
* Values outside QC limits

Comments: _____

Data Path : C:\msdchem\1\DATA\010213-M\
Data File : M65298.D
Signal(s) : Signal #1: ECD1A.ch Signal #2: ECD2B.ch
Acq On : 2 Jan 2013 6:59 pm
Operator : JK
Sample : 74510-12,1:20,,A/C
Misc : SOIL
ALS Vial : 20 Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Jan 03 10:21:01 2013
Quant Method : C:\msdchem\1\METHODS\PCB122612.M
Quant Title : SW-846 METHOD 8082 Aroclor 1016/1260/1254
QLast Update : Wed Jan 02 21:46:18 2013
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 2 uL
Signal #1 Phase : STX-CLPPesticides Signal #2 Phase: STX-CLPPesticides
Signal #1 Info : 30 m x 0.25mm x 0 Signal #2 Info : 30 m x 0.25mm x 0.25 um



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SAMPLE DATA

CLIENT SAMPLE ID

Project Name: Mass College of Liberal Arts
Project Number: 226296
Field Sample ID: BH-CBK-013

Lab Sample ID: 74510-13
Matrix: Solid
Percent Solid: 100
Dilution Factor: 168
Collection Date: 12/17/12
Lab Receipt Date: 12/18/12
Extraction Date: 12/26/12
Analysis Date: 01/02/13

PCB ANALYTICAL RESULTS

COMPOUND	Quantitation Limit $\mu\text{g/kg}$	Results $\mu\text{g/kg}$
PCB-1016	5540	U
PCB-1221	5540	U
PCB-1232	5540	U
PCB-1242	5540	U
PCB-1248	5540	U
PCB-1254	5540	48000
PCB-1260	5540	U
PCB-1262	5540	U
PCB-1268	5540	U
Surrogate Standard Recovery		
2,4,5,6-Tetrachloro-m-xylene	65	%
Decachlorobiphenyl	84	%
U=Undetected J=Estimated E=Exceeds Calibration Range B=Detected in Blank		

METHODOLOGY: Sample analysis conducted according to Test Methods for Evaluating Solid Waste, SW-846 Method 8082A.
Sample preparation conducted according to Test Methods for Evaluating Solid Waste, SW-846 Method 3540C.
Sample cleanup was conducted according to SW-846 Method 3665A.

COMMENTS: Results are expressed on a dry weight basis.

PCB EXT Report

Authorized signature



PCB
COLUMN RELATIVE PERCENT DIFFERENCE

Instrument ID: M

SDG: 74510

GC Column #1: STX-CLPesticides I

Sample: 74510-13,1:20,,A/C

Column ID: 0.25 mm

Data File: M65299.D

GC Column #2: STX-CLPesticides II

Dilution Factor: 168.1

Column ID: 0.25 mm

COMPOUND	Column #1	Column #2		
	SAMPLE RESULT (ug/kg)	SAMPLE RESULT (ug/kg)	RPD	#
PCB 1254	45243	48021	6.0	

Column to be used to flag RPD values greater than QC limit of 40%

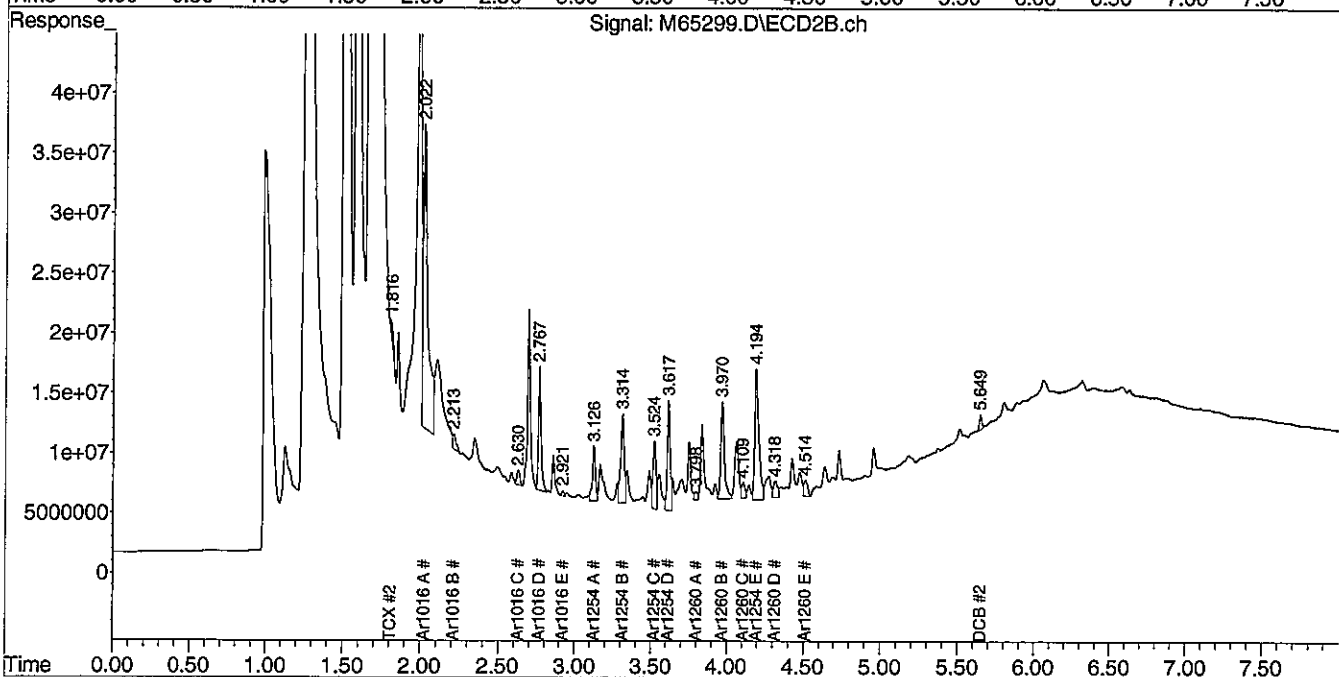
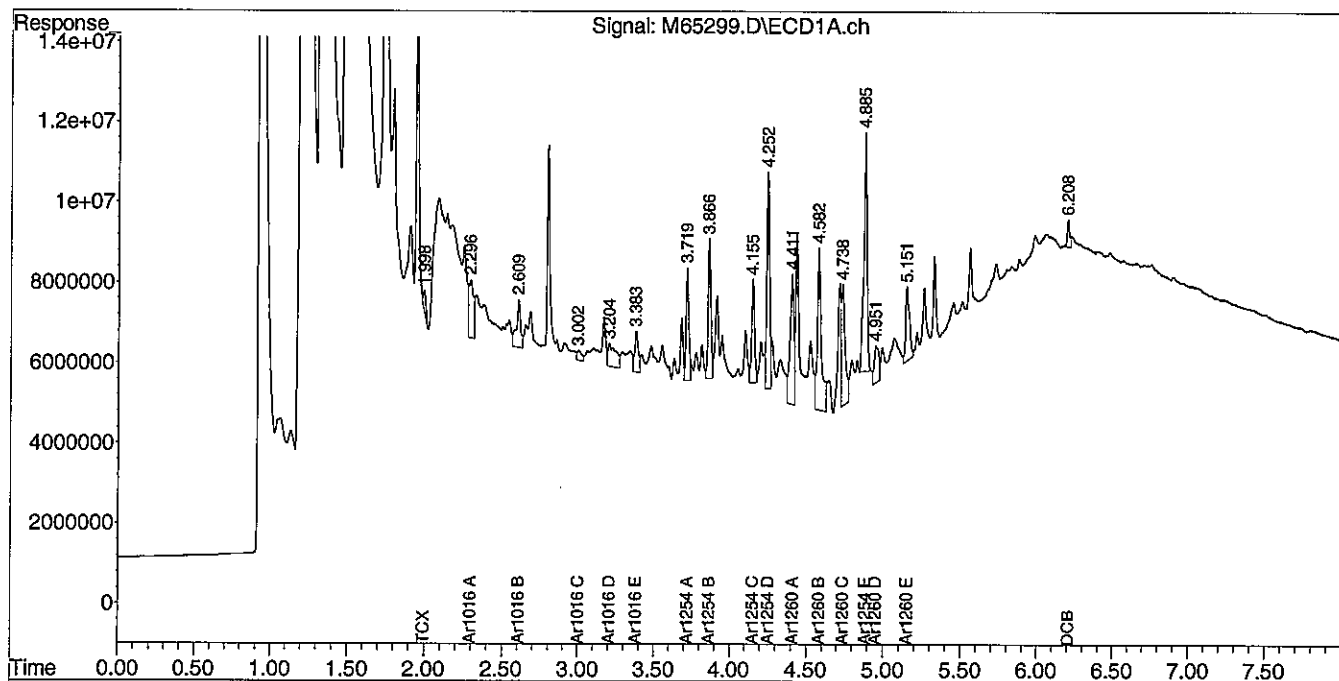
* Values outside QC limits

Comments: _____

Data Path : C:\msdchem\1\DATA\010213-M\-----
Data File : M65299.D
Signal(s) : Signal-#1: ECD1A.ch Signal-#2: ECD2B.ch
Acq On : 2 Jan 2013 7:10 pm
Operator : JK
Sample : 74510-13,1:20,,A/C
Misc : SOIL
ALS Vial : 21 Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Jan 03 09:36:41 2013
Quant Method : C:\msdchem\1\METHODS\PCB122612.M
Quant Title : SW-846 METHOD 8082 Aroclor 1016/1260/1254
QLast Update : Wed Jan 02 21:46:18 2013
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 2 uL
Signal #1 Phase : STX-CLPPesticides Signal #2 Phase: STX-CLPPesticides
Signal #1 Info : 30 m x 0.25mm x 0.25 um Signal #2 Info : 30 m x 0.25mm x 0.25 um



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SAMPLE DATA

CLIENT SAMPLE ID

Project Name: Mass College of Liberal Arts
Project Number: 226296
Field Sample ID: BH-CBK-014

Lab Sample ID: 74510-14
Matrix: Solid
Percent Solid: 98
Dilution Factor: 134
Collection Date: 12/17/12
Lab Receipt Date: 12/18/12
Extraction Date: 12/26/12
Analysis Date: 01/02/13

PCB ANALYTICAL RESULTS

COMPOUND	Quantitation Limit $\mu\text{g/kg}$	Results $\mu\text{g/kg}$
PCB-1016	4420	U
PCB-1221	4420	U
PCB-1232	4420	U
PCB-1242	4420	U
PCB-1248	4420	U
PCB-1254	4420	20300
PCB-1260	4420	U
PCB-1262	4420	U
PCB-1268	4420	U

Surrogate Standard Recovery

2,4,5,6-Tetrachloro-m-xylene 109 %
Decachlorobiphenyl 112 %

U=Undetected J=Estimated E=Exceeds Calibration Range B=Detected in Blank

METHODOLOGY: Sample analysis conducted according to Test Methods for Evaluating Solid Waste, SW-846 Method 8082A.
Sample preparation conducted according to Test Methods for Evaluating Solid Waste, SW-846 Method 3540C.
Sample cleanup was conducted according to SW-846 Method 3665A.

COMMENTS: Results are expressed on a dry weight basis.

PCB EXT Report

Authorized signature



PCB
COLUMN RELATIVE PERCENT DIFFERENCE

Instrument ID: M

SDG: 74510

GC Column #1: STX-CLPesticides I

Sample: 74510-14,1:20,,A/C

Column ID: 0.25 mm

Data File: M65300.D

GC Column #2: STX-CLPesticides II

Dilution Factor: 133.5

Column ID: 0.25 mm

COMPOUND	Column #1	Column #2	RPD		#
	SAMPLE RESULT (ug/kg)	SAMPLE RESULT (ug/kg)			
PCB 1254	15638	20262	25.8		

Column to be used to flag RPD values greater than QC limit of 40%

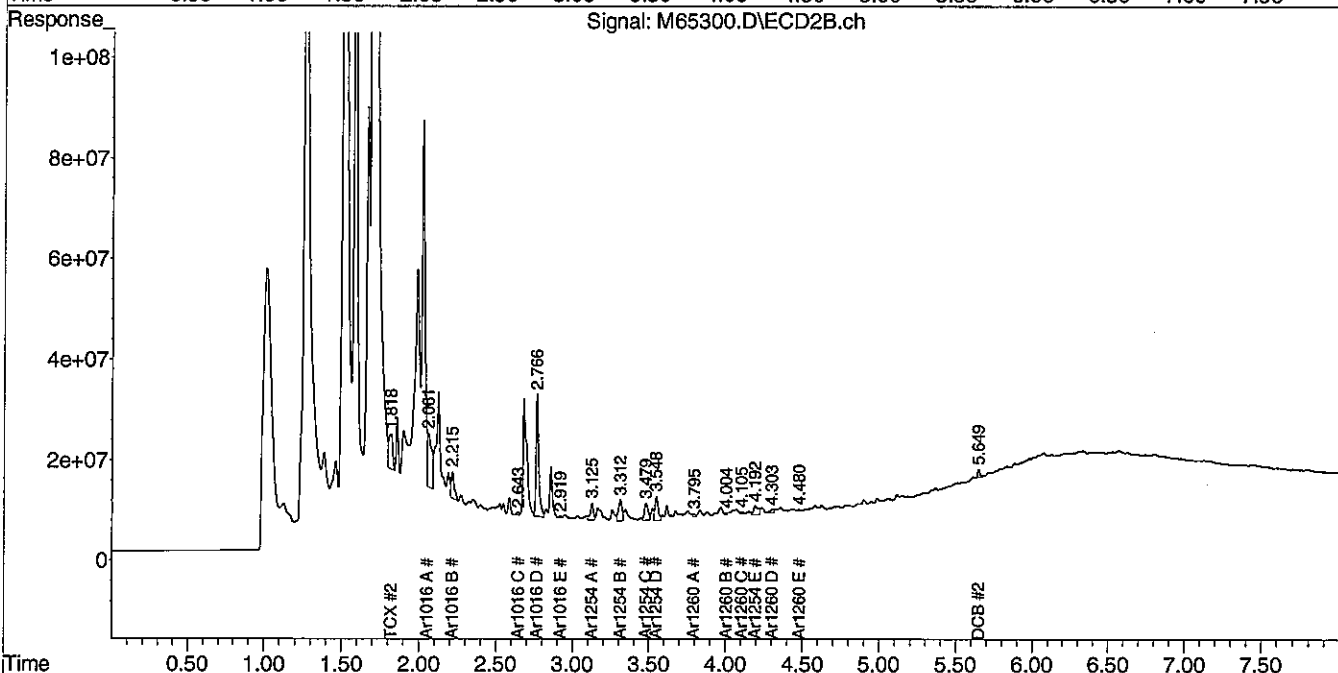
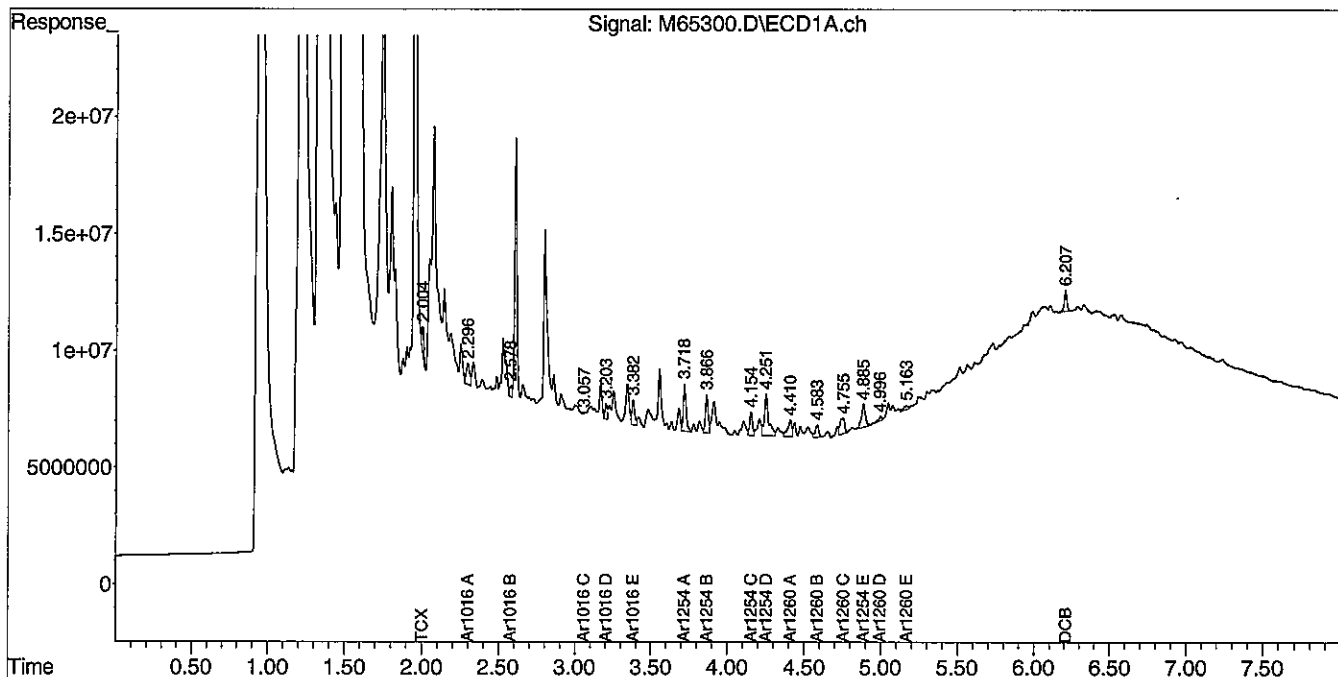
* Values outside QC limits

Comments: _____

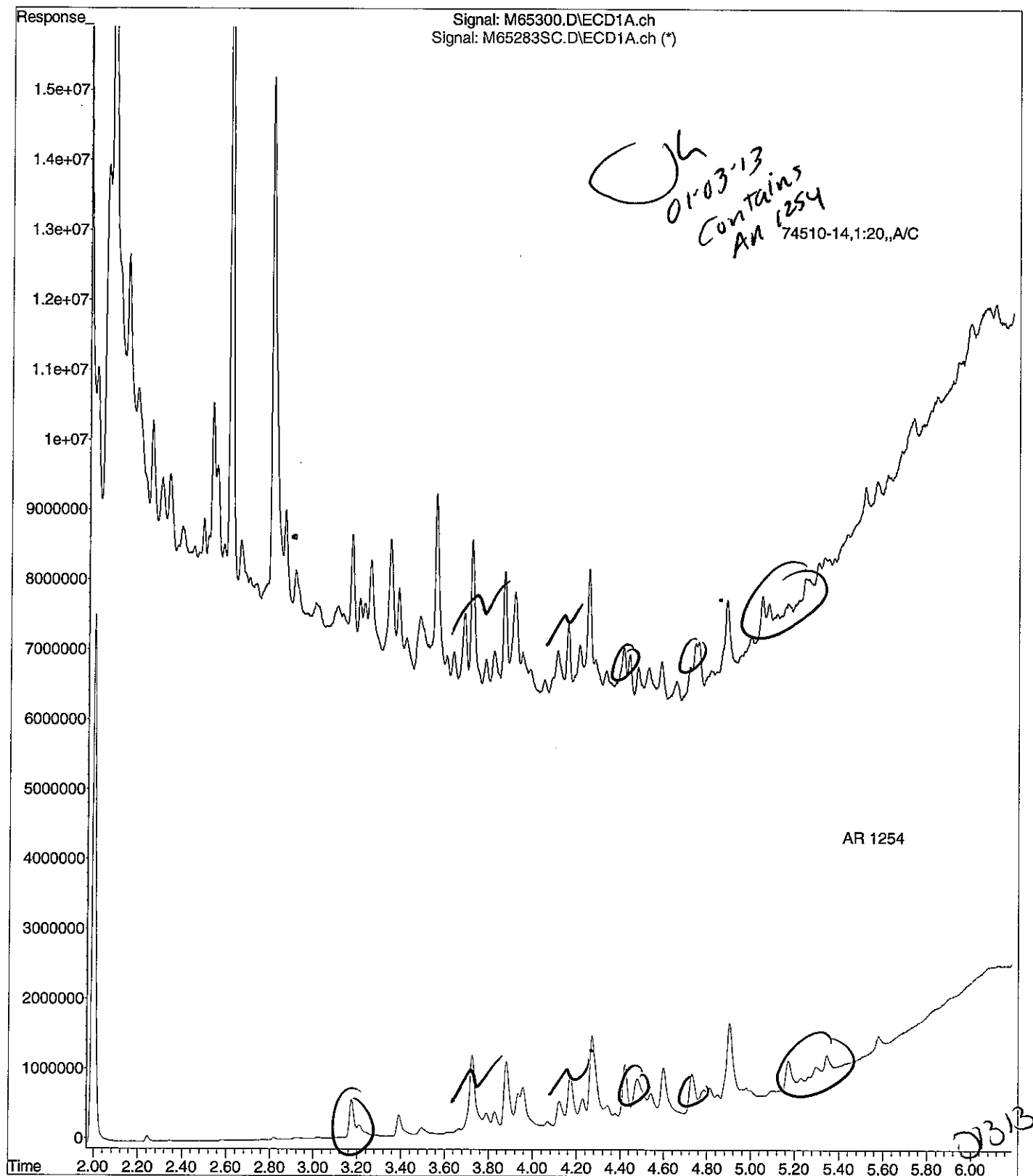
Data Path : C:\msdchem\1\DATA\010213-M\-----
 Data File : M65300.D
 Signal(s) : Signal #1: ECD1A.ch Signal #2: ECD2B.ch
 Acq On : 2 Jan 2013 7:20 pm
 Operator : JK
 Sample : 74510-14,1:20,,A/C
 Misc : SOIL
 ALS Vial : 22 Sample Multiplier: 1

Integration File signal 1: events.e
 Integration File signal 2: events2.e
 Quant Time: Jan 03 09:57:55 2013
 Quant Method : C:\msdchem\1\METHODS\PCB122612.M
 Quant Title : SW-846 METHOD 8082 Aroclor 1016/1260/1254
 QLast Update : Wed Jan 02 21:46:18 2013
 Response via : Initial Calibration
 Integrator: ChemStation

Volume Inj. : 2 uL
 Signal #1 Phase : STX-CLPPesticides Signal #2 Phase: STX-CLPPesticides
 Signal #1 Info : 30 m x 0.25mm x 0 Signal #2 Info : 30 m x 0.25mm x 0.25 um



File : C:\msdchem\1\DATA\010213-M\M65300.D
Operator : JK
Acquired : 2 Jan 2013 7:20 pm using AcqMethod PCB.M
Instrument : Instrument M
Sample Name: 74510-14,1:20,,A/C
Misc Info : SOIL
Vial Number: 22



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January 3, 2013

SAMPLE DATA

CLIENT SAMPLE ID

Project Name: Mass College of Liberal Arts
Project Number: 226296
Field Sample ID: BH-CBK-015

Lab Sample ID: 74510-15
Matrix: Solid
Percent Solid: 100
Dilution Factor: 196
Collection Date: 12/17/12
Lab Receipt Date: 12/18/12
Extraction Date: 12/26/12
Analysis Date: 01/02/13

PCB ANALYTICAL RESULTS

COMPOUND	Quantitation Limit $\mu\text{g/kg}$	Results $\mu\text{g/kg}$
PCB-1016	6470	U
PCB-1221	6470	U
PCB-1232	6470	U
PCB-1242	6470	U
PCB-1248	6470	U
PCB-1254	6470	181000
PCB-1260	6470	U
PCB-1262	6470	U
PCB-1268	6470	U
Surrogate Standard Recovery		
2,4,5,6-Tetrachloro-m-xylene	98	%
Decachlorobiphenyl	109	%
U=Undetected J=Estimated E=Exceeds Calibration Range B=Detected in Blank		

METHODOLOGY: Sample analysis conducted according to Test Methods for Evaluating Solid Waste, SW-846 Method 8082A.
Sample preparation conducted according to Test Methods for Evaluating Solid Waste, SW-846 Method 3540C.
Sample cleanup was conducted according to SW-846 Method 3665A.

COMMENTS: Results are expressed on a dry weight basis.



PCB
COLUMN RELATIVE PERCENT DIFFERENCE

Instrument ID: M	SDG: 74510
GC Column #1: STX-CLPesticides I	Sample: 74510-15,1:20,,A/C
Column ID: 0.25 mm	Data File: M65301.D
GC Column #2: STX-CLPesticides II	Dilution Factor: 196.1
Column ID: 0.25 mm	

COMPOUND	Column #1	Column #2	RPD		#
	SAMPLE RESULT (ug/kg)	SAMPLE RESULT (ug/kg)			
PCB 1254	180892	179760	0.6		

Column to be used to flag RPD values greater than QC limit of 40%

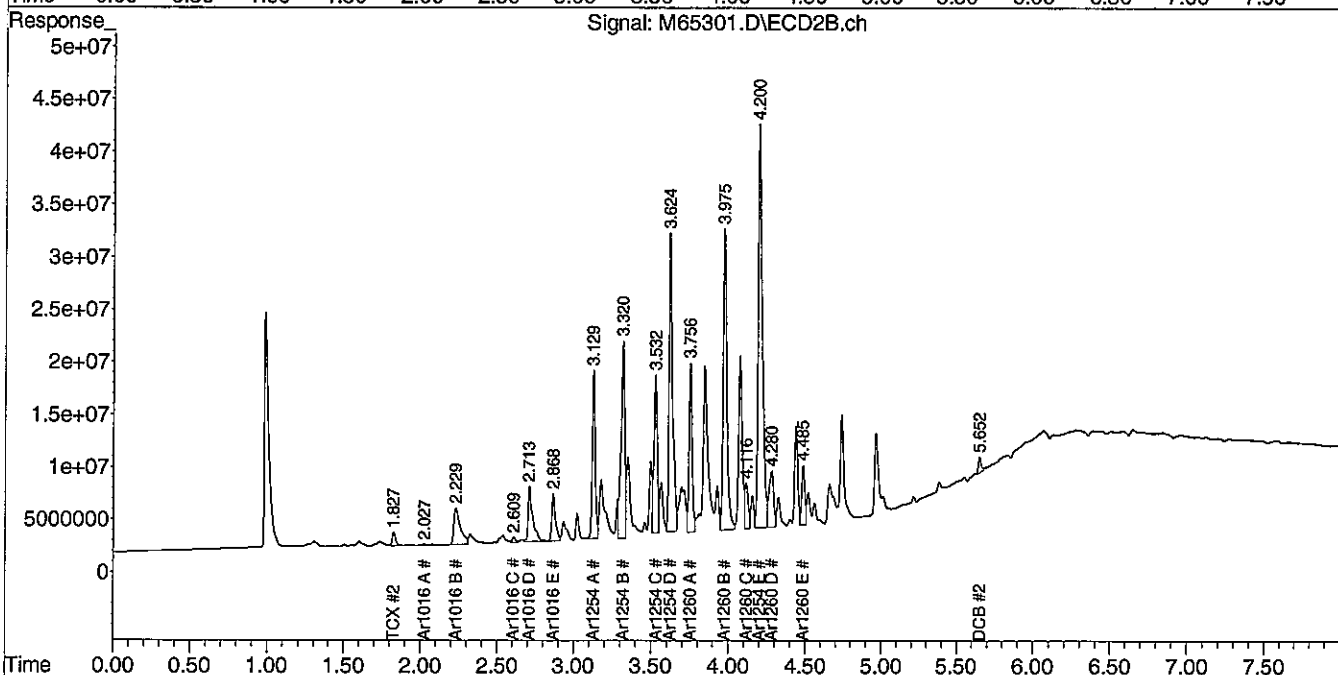
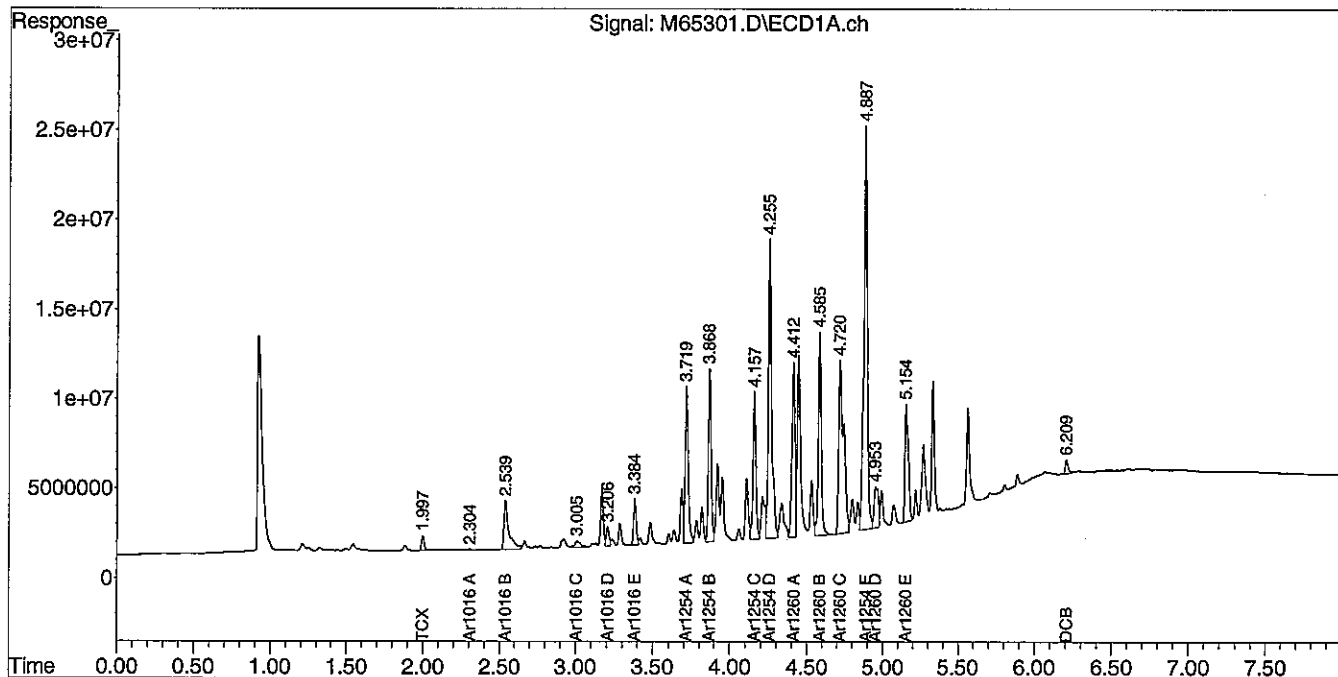
* Values outside QC limits

Comments: _____

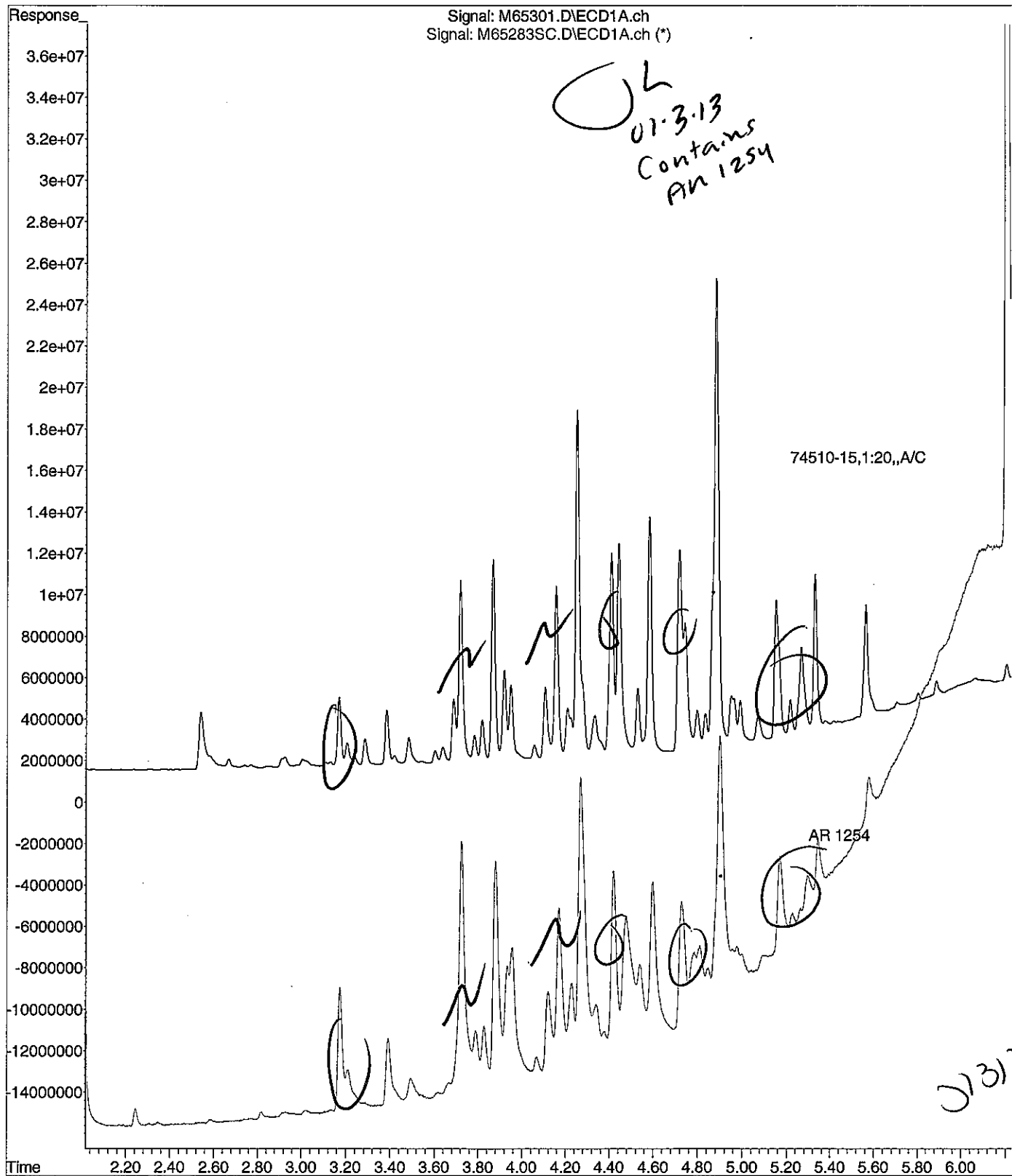
Data Path : C:\msdchem\1\DATA\010213-M\
 Data File : M65301.D
 Signal(s) : Signal-#1: ECD1A.ch Signal-#2: ECD2B.ch
 Acq On : 2 Jan 2013 7:30 pm
 Operator : JK
 Sample : 74510-15,1:20,,A/C
 Misc : SOIL
 ALS Vial : 23 Sample Multiplier: 1

Integration File signal 1: events.e
 Integration File signal 2: events2.e
 Quant Time: Jan 03 09:42:38 2013
 Quant Method : C:\msdchem\1\METHODS\PCB122612.M
 Quant Title : SW-846 METHOD 8082 Aroclor 1016/1260/1254
 QLast Update : Wed Jan 02 21:46:18 2013
 Response via : Initial Calibration
 Integrator: ChemStation

Volume Inj. : 2 uL
 Signal #1 Phase : STX-CLPPesticides Signal #2 Phase: STX-CLPPesticides
 Signal #1 Info : 30 m x 0.25mm x 0 Signal #2 Info : 30 m x 0.25mm x 0.25 um



File : C:\msdchem\1\DATA\01-02-13-M\M65301.D
Operator : JK
Acquired : 2 Jan 2013 7:30 pm using AcqMethod PCB.M
Instrument : Instrument M
Sample Name: 74510-15,1:20,,A/C
Misc Info : SOIL
Vial Number: 23



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January 3, 2013

SAMPLE DATA

CLIENT SAMPLE ID

Project Name: Mass College of Liberal Arts
Project Number: 226296
Field Sample ID: BH-CBK-016

Lab Sample ID: 74510-16
Matrix: Solid
Percent Solid: 98
Dilution Factor: 81200
Collection Date: 12/17/12
Lab Receipt Date: 12/18/12
Extraction Date: 12/26/12
Analysis Date: 01/02/13

PCB ANALYTICAL RESULTS

COMPOUND	Quantitation Limit $\mu\text{g/kg}$	Results $\mu\text{g/kg}$
PCB-1016	2680000	U
PCB-1221	2680000	U
PCB-1232	2680000	U
PCB-1242	2680000	U
PCB-1248	2680000	U
PCB-1254	2680000	63200000
PCB-1260	2680000	U
PCB-1262	2680000	U
PCB-1268	2680000	U

Surrogate Standard Recovery

2,4,5,6-Tetrachloro-m-xylene * %
Decachlorobiphenyl * %

U=Undetected I=Estimated E=Exceeds Calibration Range B=Detected in Blank

METHODOLOGY: Sample analysis conducted according to Test Methods for Evaluating Solid Waste, SW-846 Method 8082A.
Sample preparation conducted according to Test Methods for Evaluating Solid Waste, SW-846 Method 3540C.
Sample cleanup was conducted according to SW-846 Method 3665A.

COMMENTS: Results are expressed on a dry weight basis.
* The surrogates were diluted out.



PCB
COLUMN RELATIVE PERCENT DIFFERENCE

Instrument ID: M	SDG: 74510
GC Column #1: STX-CLPesticides I	Sample: 74510-16,1:10000,,A/C
Column ID: 0.25 mm	Data File: M65302.D
GC Column #2: STX-CLPesticides II	Dilution Factor: 81167.0
Column ID: 0.25 mm	

Column #1		Column #2		
COMPOUND	SAMPLE RESULT (ug/kg)	SAMPLE RESULT (ug/kg)	RPD	#
PCB 1254	63242232	62083979	1.8	

Column to be used to flag RPD values greater than QC limit of 40%

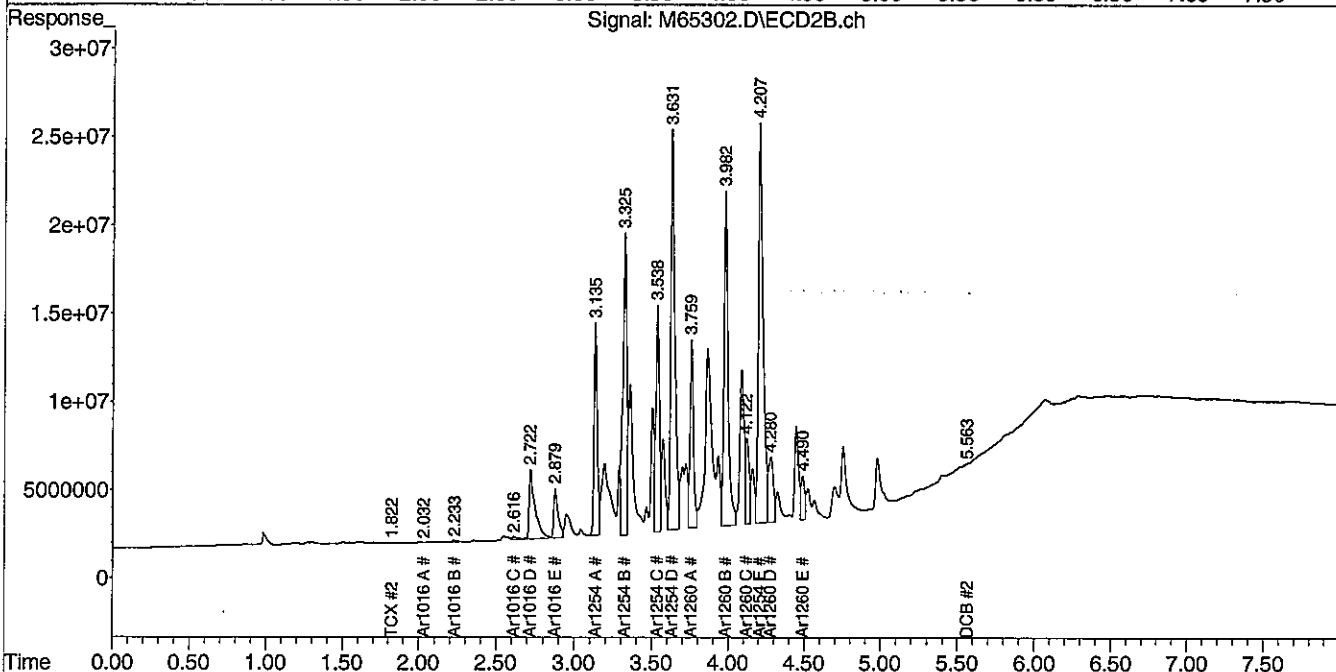
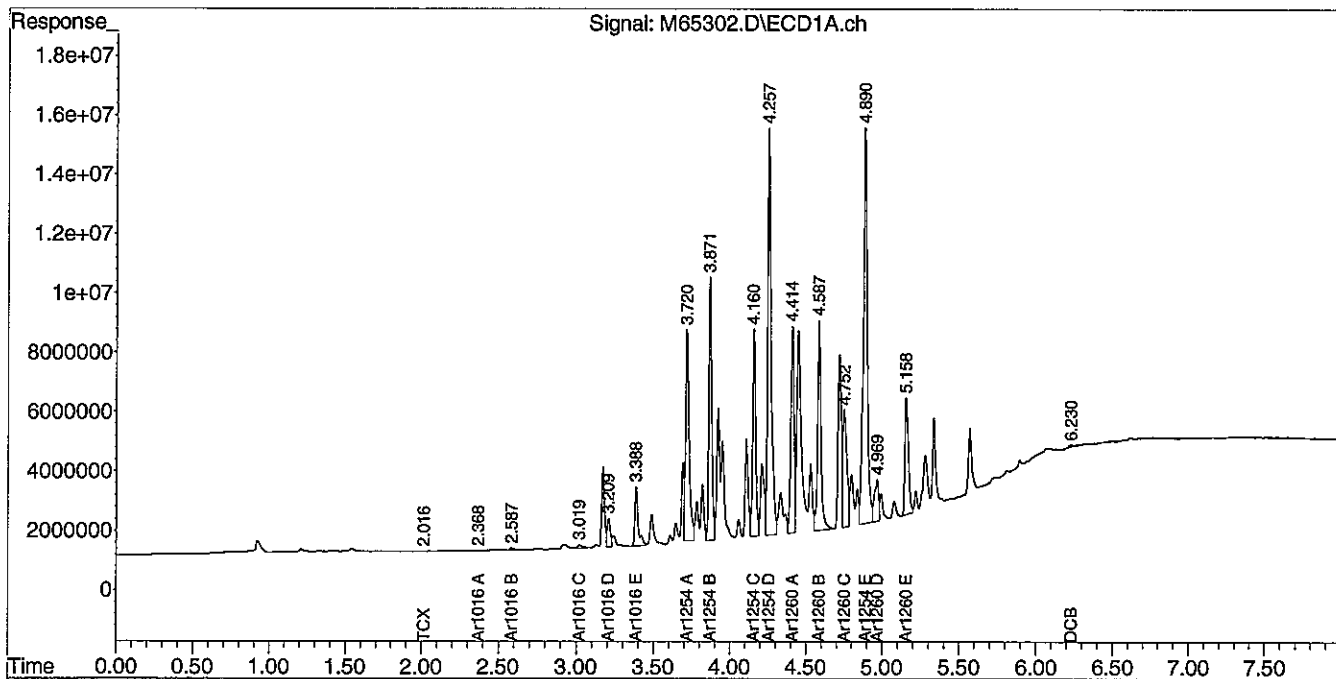
* Values outside QC limits

Comments: _____

Data Path : C:\msdchem\1\DATA\010213-M\
Data File : M65302.D
Signal(s) : Signal #1: ECD1A.ch Signal #2: ECD2B.ch
Acq On : 2 Jan 2013 7:40 pm
Operator : JK
Sample : 74510-16,1:10000,,A/C
Misc : SOIL
ALS Vial : 24 Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Jan 03 09:44:40 2013
Quant Method : C:\msdchem\1\METHODS\PCB122612.M
Quant Title : SW-846 METHOD 8082 Aroclor 1016/1260/1254
QLast Update : Wed Jan 02 21:46:18 2013
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 2 uL
Signal #1 Phase : STX-CLPPesticides Signal #2 Phase: STX-CLPPesticides
Signal #1 Info : 30 m x 0.25mm x 0 Signal #2 Info : 30 m x 0.25mm x 0.25 um



PCB QC FORMS

Ms. Amy Wallace
Woodard & Curran
41 Hutchins Drive
Portland ME 04102

January 3, 2013

SAMPLE DATA

CLIENT SAMPLE ID

Project Name: Mass College of Liberal Arts
Project Number: 226296
Field Sample ID: Lab QC

Lab Sample ID: B122612PSOX2
Matrix: Soil
Percent Solid: 100
Dilution Factor: 1.0
Collection Date:
Lab Receipt Date:
Extraction Date: 12/26/12
Analysis Date: 01/02/13

PCB ANALYTICAL RESULTS

COMPOUND	Quantitation Limit $\mu\text{g/kg}$	Results $\mu\text{g/kg}$
PCB-1016	33	U
PCB-1221	33	U
PCB-1232	33	U
PCB-1242	33	U
PCB-1248	33	U
PCB-1254	33	U
PCB-1260	33	U
PCB-1262	33	U
PCB-1268	33	U
<u>Surrogate Standard Recovery</u>		
2,4,5,6-Tetrachloro-m-xylene	69	%
Decachlorobiphenyl	54	%
U=Undetected J=Estimated E=Exceeds Calibration Range B=Detected in Blank		

METHODOLOGY: Sample analysis conducted according to Test Methods for Evaluating Solid Waste, SW-846 Method 8082A.
Sample preparation conducted according to Test Methods for Evaluating Solid Waste, SW-846 Method 3540C.
Sample cleanup was conducted according to SW-846 Method 3665A.

COMMENTS: Results are expressed on a dry weight basis.

PCB EXT Report

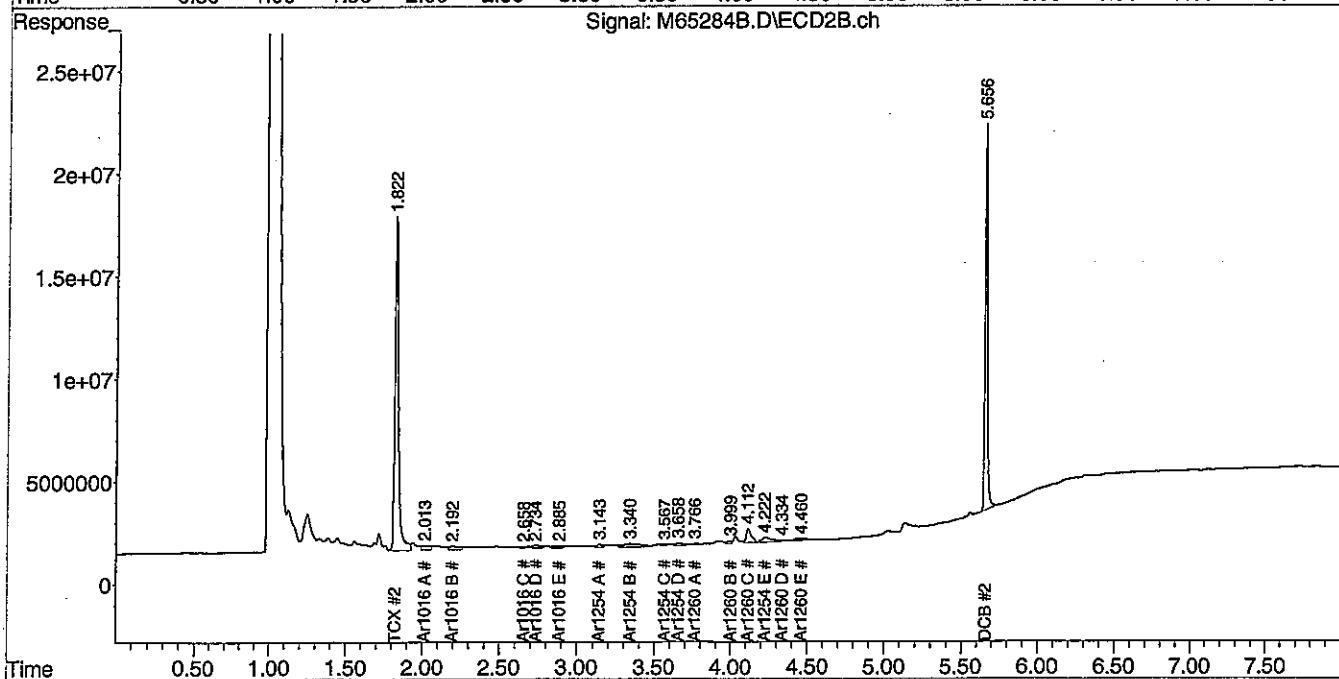
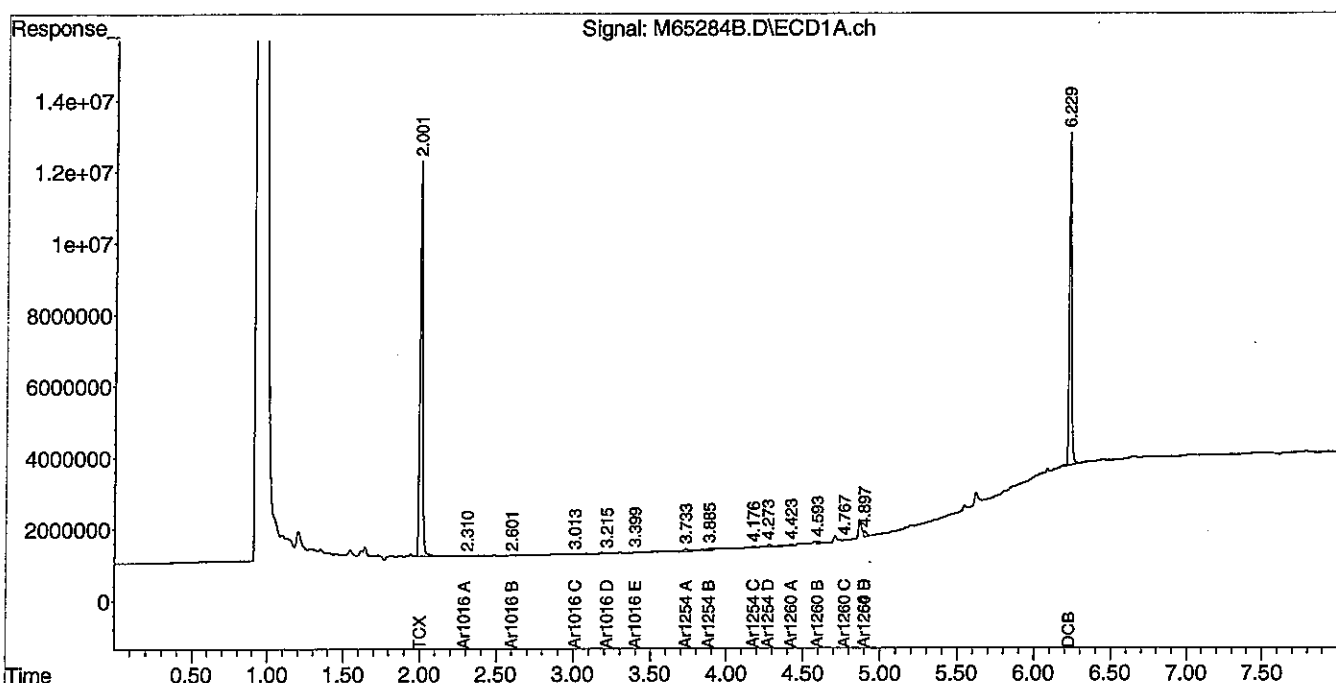
Authorized signature



Data Path : C:\msdchem\1\DATA\010213-M\
 Data File : M65284B.D
 Signal(s) : Signal #1: ECD1A.ch Signal #2: ECD2B.ch
 Acq On : 2 Jan 2013 4:38 pm
 Operator : JK
 Sample : B122612PSOX2,,A/C
 Misc : SOIL
 ALS Vial : 6 Sample Multiplier: 1

Integration File signal 1: events.e
 Integration File signal 2: events2.e
 Quant Time: Jan 03 08:39:38 2013
 Quant Method : C:\msdchem\1\METHODS\PCB122612.M
 Quant Title : SW-846 METHOD 8082 Aroclor 1016/1260/1254
 QLast Update : Wed Jan 02 21:46:16 2013
 Response via : Initial Calibration
 Integrator: ChemStation

Volume Inj. : 2 uL
 Signal #1 Phase : STX-CLPPesticides Signal #2 Phase: STX-CLPPesticides
 Signal #1 Info : 30 m x 0.25mm x 0 Signal #2 Info : 30 m x 0.25mm x 0.25 um



PCB SOIL

SDG: 74510

	Lower Limit	Upper Limit
SMC #1 = TCX	40	130
SMC #2 = DCB	40	130

PCB FORM 2

PCB SOIL
LABORATORY CONTROL SAMPLE/DUPLICATE
PERCENT RECOVERY

Instrument ID: M

GC Column #1: STX-CLPesticides I

Column ID: 0.25 mm

GC Column #2: STX-CLPesticides II

Column ID: 0.25 mm

SDG:

Non-spiked sample: B122612PSOX2,,A/C

Spike: L122612PSOX2,,A/C

Spike duplicate: LD122612PSOX2,,A/C

	LCS SPIKE	LCSD SPIKE	LOWER	UPPER	RPD	NON-SPIKE	SPIKE		SPIKE		SPIKE DUP		SPIKE DUP		RPD	
COMPOUND	ADDED (ug/kg)	ADDED (ug/kg)	LIMIT	LIMIT	LIMIT	RESULT (ug/kg)	RESULT (ug/kg)	% REC	#	RESULT (ug/kg)	% REC	#	RPD	#		
PCB 1016	200	200	65	140	30	0	172	86		172	86		0.3			
PCB 1260	200	200	60	130	30	0	170	85		177	89		4.0			
PCB 1016 #2	200	200	65	140	30	0	189	95		186	93		2.0			
PCB 1260 #2	200	200	60	130	30	0	204	102		206	103		1.2			

Column to be used to flag recovery and RPD values outside of QC limits

* Values outside QC limits

LCS/LCSD spike added values have been weight adjusted.

Non-spike result of "0" used in place of "U" to allow calculation of spike recovery.

Comments: _____

CHAIN OF CUSTODIES

Chain Of Custody Form

analytics environmental laboratory LLC 195 Commerce Way Suite E Portsmouth, NH 03801 Phone (603) 436-5111 Fax (603) 430-2151		For Analytics Use Only Rev. 4/03/28/08	
Project#: 2262916 Proj. Name: <u>Mass College of Liberal Arts</u> Company: <u>Woodard & Curran</u> Contact: <u>Amy Wallace</u> Address: <u>41 Hutchins Dr</u> <u>Portland ME 04102</u> Phone: <u>2077741112</u> PO# _____ Quote # _____ Sampler (Signature): <u>Amy Wallace</u>		Samples were: 1) Shipped or hand-delivered 2) Temp blank °C <u>4.30C</u> 3) Received in good condition <u>Y</u> or <u>N</u> 4) pH checked by: <u>N/A</u> 5) Labels checked by: <u>12/18/12</u>	
Matrix Key: C = Concrete WP = Wipe WW = Wastewater SW = Surface Water GW = Groundwater DW = Drinking Water S = Soil/Sludge O = Oil E = Extract X = Other		Container Key P=plastic G=glass	
Preservation Unpres <input checked="" type="checkbox"/> HCL <input type="checkbox"/> HNO ₃ <input type="checkbox"/> H ₂ O ₂ <input type="checkbox"/> Methanol <input type="checkbox"/> Other <input type="checkbox"/>		Analysis <u>PCB/sox/het</u>	
Station Identification	Sample Date	Sample Time	Analysis
BH-CBK-001	12/17/12	10:14	PCB/sox/het
BH-CBK-002		10:18	
BH-CBK-003		10:25	
BH-CBK-004		10:33	
BH-CBK-005		10:40	
BH-CBK-006		10:42	
BH-CBK-007		10:50	
BH-CBK-008		10:55	
BH-CBK-009		11:03	
BH-CBK-010		9:38	
BH-CBK-011		11:12	
Email Results to: <u>awallace@woodardcurran.com</u>		Comments / Instructions:	
Turnaround Request <input checked="" type="checkbox"/> Standard Due Date <input type="checkbox"/> Priority Due Date		Project Requirements: Report Type: <input checked="" type="checkbox"/> MCP <input type="checkbox"/> CTCR <input type="checkbox"/> DOD <input type="checkbox"/> Standard State: <input checked="" type="checkbox"/> NH <input type="checkbox"/> MA <input type="checkbox"/> ME <input type="checkbox"/> CT <input type="checkbox"/> RI State Standard: (eg. S-1 or GW-1) EDD Required: <u>Y</u> <u>N</u> Type: <u>PDF</u> *Fee may apply	
Lab Approval Required		Date: _____ Time: _____ Received By: _____ Date: _____ Time: _____ Received By: _____ Date: _____ Time: _____ Received By: _____	

Chain Of Custody Form

analytix environmental laboratory LLC 195 Commerce Way, Suite E Portsmouth, NH 03801 Phone (603) 436-5111 Fax (603) 430-2151		For Analytics Use Only Rev. 4/03/28/08	
Project#: 2262916 Proj. Name: Miss College of Liberal Arts Company: Woodward & Curran Contact: Amy Wallace Address: 41 Hutchins Dr Portland ME 04102 Phone: 207-774-2112 PO# Quote # Sampler (Signature): Amy Wallace		Samples were: 1) Shipped or hand-delivered 2) Temp blank °C 4.3 3) Received in good condition Y or N 4) pH checked by: N/A 5) Labels checked by: 12/18/12	
Matrix Key: C = Concrete WP = Wipe WW = Wastewater SW = Surface Water GW = Groundwater DW = Drinking Water S = Soil/Sludge O = Oil E = Extract X = Other		Container Key P = plastic G = glass	
Preservation Unpres H ₂ O ₂ HNO ₃ H ₂ SO ₄ HCL Methanol Other		Matrix Container number/typ	
Station Identification Sample Date Sample Time Analysis		pH Analytics Sample #	
BH-CBK-012 12/17/12 11:28 PCE/soxhlet BH-CBK-013 11:31 BH-CBK-014 11:35 BH-CBK-015 11:40 BH-CBK-D-016 10:33		-12 -13 -14 -15 -16	
Email Results to: amwallace@woodwardcurran.com		Project Requirements: Report Type: MCP <input checked="" type="checkbox"/> Level II CTRC <input type="checkbox"/> Level III DOD <input type="checkbox"/> Level IV <input type="checkbox"/> Standard State: NH <input checked="" type="checkbox"/> MA <input type="checkbox"/> ME <input type="checkbox"/> CT <input type="checkbox"/> RI <input type="checkbox"/> EDD Required: Y* N Type: PDF Page 2 of 2	
Turnaround Request Standard <input checked="" type="checkbox"/> Priority <input type="checkbox"/> Due Date Due Date		Date: 12/18/12 Time: 1530 Received By: K. Stettin	
Lab Approval Required Analytix/VEL Documents/VEL COC		Date: 12/18/12 Time: 1530 Received By: K. Stettin	

AEL LAB#: 74510
 CLIENT: Woodard + Curran
 PROJECT: Mass College of Liberal Arts

COOLER NUMBER: 215
 NUMBER OF COOLERS: 1

A: PRELIMINARY EXAMINATION:

1. Cooler received by (initials): KS DATE COOLER RECEIVED/OPENED: 12/18/12
2. Circle one: Hand delivered (If so, skip 3) Shipped
3. Did cooler come with a shipping slip? Y N
- 3a. Enter carrier name and airbill number here: _____
4. Were custody seals on the outside of cooler?
 How many & where: _____ Seal Date: _____ Seal Name: N
5. Did the custody seals arrive unbroken and intact upon arrival? Y N
6. COC#: _____
7. Were Custody papers filled out properly (ink, signed, legible, project information etc)? Y N
8. Were custody papers sealed in a plastic bag? Y N
9. Did you sign the COC in the appropriate place? Y N
10. Was enough ice used to chill the cooler? Y N Temp. of cooler: 4.3°C

B. Log-In: Date samples were logged in: 12/18/12

By: 12/18/12

11. Were all bottles sealed in separate plastic bags? Y N
12. Did all bottles arrive unbroken and were labels in good condition? Y N
13. Were all bottle labels complete (ID, Date, time, etc.)? Y N
14. Did all bottle labels agree with custody papers? Y N
15. Were the correct containers used for the tests indicated? Y N
16. Were samples received at the correct pH? Y N
17. Was sufficient amount of sample sent for the tests indicated? Y N
18. Were all samples submitted within holding time? Y N
19. Were all containers used within AEL's expiration date? ** Y N
20. Were VOA samples absent of greater than pea-sized bubbles?
 (Note: Pea-sized bubbles or smaller are acceptable and are not considered to adversely affect volatiles data.) Y N

*no dates/times
 one without label
 written on cap*

*If NO, List Sample ID's, Lab #s: _____

When bubbles are present in VOA samples they are labelled from smallest (or no bubbles) to largest. Lab to analyze VOA samples with no bubbles or smallest bubbles first

20. Laboratory labeling verified by (initials): AP Date: 12/18/12

**The expiration date is recommended by Analytics Environmental Laboratory and not the method. Therefore this does not mean that the results are non-compliant.

August 9, 2013

Jeff Hamel
Woodard & Curran - Andover, MA
40 Shattuck Road., Suite 110
Andover, MA 01810

Project Location: MCLA Bowman Hall
Client Job Number:
Project Number: 226296
Laboratory Work Order Number: 13H0087

Enclosed are results of analyses for samples received by the laboratory on August 2, 2013. If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Meghan E. Kelley
Project Manager

Woodard & Curran - Andover, MA
40 Shattuck Road., Suite 110
Andover, MA 01810
ATTN: Jeff Hamel

REPORT DATE: 8/9/2013

PURCHASE ORDER NUMBER:

PROJECT NUMBER: 226296

ANALYTICAL SUMMARY

WORK ORDER NUMBER: 13H0087

The results of analyses performed on the following samples submitted to the CON-TEST Analytical Laboratory are found in this report.

PROJECT LOCATION: MCLA Bowman Hall

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
BOW-CBC-100	13H0087-01	Concrete		SW-846 8082A	
BOW-CBC-102	13H0087-02	Concrete		SW-846 8082A	
BOW-CBC-104	13H0087-03	Concrete		SW-846 8082A	
BOW-CBC-106	13H0087-04	Concrete		SW-846 8082A	
BOW-CBC-109	13H0087-05	Concrete		SW-846 8082A	
BOW-CBC-112	13H0087-06	Concrete		SW-846 8082A	
BOW-CBC-115	13H0087-07	Concrete		SW-846 8082A	
BOW-CBCD-118	13H0087-08	Concrete		SW-846 8082A	
BOW-CBCQ-119	13H0087-09	Equipment Blank Water		SW-846 8082A	

CASE NARRATIVE SUMMARY

All reported results are within defined laboratory quality control objectives unless listed below or otherwise qualified in this report.

SW-846 8082A**Qualifications:**

Matrix spike and/or spike duplicate recovery bias high due to contribution of other Aroclors present in the source sample.

Analyte & Samples(s) Qualified:

Aroclor-1016, Aroclor-1016 [2C], Aroclor-1260, Aroclor-1260 [2C]

B078238-MS1, B078238-MSD1

The results of analyses reported only relate to samples submitted to the Con-Test Analytical Laboratory for testing.

I certify that the analyses listed above, unless specifically listed as subcontracted, if any, were performed under my direction according to the approved methodologies listed in this document, and that based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.



Michael A. Erickson
Laboratory Director

Project Location: MCLA Bowman Hall

Sample Description:

Work Order: 13H0087

Date Received: 8/2/2013

Field Sample #: BOW-CBC-100

Sampled: 8/1/2013 14:55

Sample ID: 13H0087-01

Sample Matrix: Concrete

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.080	mg/Kg	1		SW-846 8082A	8/6/13	8/9/13 1:20	PJG
Aroclor-1221 [1]	ND	0.080	mg/Kg	1		SW-846 8082A	8/6/13	8/9/13 1:20	PJG
Aroclor-1232 [1]	ND	0.080	mg/Kg	1		SW-846 8082A	8/6/13	8/9/13 1:20	PJG
Aroclor-1242 [1]	ND	0.080	mg/Kg	1		SW-846 8082A	8/6/13	8/9/13 1:20	PJG
Aroclor-1248 [1]	0.52	0.080	mg/Kg	1		SW-846 8082A	8/6/13	8/9/13 1:20	PJG
Aroclor-1254 [1]	0.85	0.080	mg/Kg	1		SW-846 8082A	8/6/13	8/9/13 1:20	PJG
Aroclor-1260 [2]	0.57	0.080	mg/Kg	1		SW-846 8082A	8/6/13	8/9/13 1:20	PJG
Aroclor-1262 [1]	ND	0.080	mg/Kg	1		SW-846 8082A	8/6/13	8/9/13 1:20	PJG
Aroclor-1268 [1]	ND	0.080	mg/Kg	1		SW-846 8082A	8/6/13	8/9/13 1:20	PJG
Surrogates	% Recovery	Recovery Limits	Flag						
Decachlorobiphenyl [1]	96.5	30-150						8/9/13 1:20	
Decachlorobiphenyl [2]	78.5	30-150						8/9/13 1:20	
Tetrachloro-m-xylene [1]	99.0	30-150						8/9/13 1:20	
Tetrachloro-m-xylene [2]	81.4	30-150						8/9/13 1:20	

Project Location: MCLA Bowman Hall

Sample Description:

Work Order: 13H0087

Date Received: 8/2/2013

Field Sample #: BOW-CBC-102

Sampled: 8/1/2013 15:25

Sample ID: 13H0087-02

Sample Matrix: Concrete

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.10	mg/Kg	1		SW-846 8082A	8/6/13	8/9/13 1:32	PJG
Aroclor-1221 [1]	ND	0.10	mg/Kg	1		SW-846 8082A	8/6/13	8/9/13 1:32	PJG
Aroclor-1232 [1]	ND	0.10	mg/Kg	1		SW-846 8082A	8/6/13	8/9/13 1:32	PJG
Aroclor-1242 [1]	ND	0.10	mg/Kg	1		SW-846 8082A	8/6/13	8/9/13 1:32	PJG
Aroclor-1248 [1]	0.11	0.10	mg/Kg	1		SW-846 8082A	8/6/13	8/9/13 1:32	PJG
Aroclor-1254 [1]	0.14	0.10	mg/Kg	1		SW-846 8082A	8/6/13	8/9/13 1:32	PJG
Aroclor-1260 [1]	0.11	0.10	mg/Kg	1		SW-846 8082A	8/6/13	8/9/13 1:32	PJG
Aroclor-1262 [1]	ND	0.10	mg/Kg	1		SW-846 8082A	8/6/13	8/9/13 1:32	PJG
Aroclor-1268 [1]	ND	0.10	mg/Kg	1		SW-846 8082A	8/6/13	8/9/13 1:32	PJG
Surrogates	% Recovery	Recovery Limits	Flag						
Decachlorobiphenyl [1]	99.8	30-150						8/9/13 1:32	
Decachlorobiphenyl [2]	81.3	30-150						8/9/13 1:32	
Tetrachloro-m-xylene [1]	102	30-150						8/9/13 1:32	
Tetrachloro-m-xylene [2]	85.1	30-150						8/9/13 1:32	

Project Location: MCLA Bowman Hall

Sample Description:

Work Order: 13H0087

Date Received: 8/2/2013

Field Sample #: BOW-CBC-104

Sampled: 8/1/2013 13:30

Sample ID: 13H0087-03

Sample Matrix: Concrete

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.083	mg/Kg	1		SW-846 8082A	8/6/13	8/9/13 1:45	PJG
Aroclor-1221 [1]	ND	0.083	mg/Kg	1		SW-846 8082A	8/6/13	8/9/13 1:45	PJG
Aroclor-1232 [1]	ND	0.083	mg/Kg	1		SW-846 8082A	8/6/13	8/9/13 1:45	PJG
Aroclor-1242 [1]	ND	0.083	mg/Kg	1		SW-846 8082A	8/6/13	8/9/13 1:45	PJG
Aroclor-1248 [1]	0.13	0.083	mg/Kg	1		SW-846 8082A	8/6/13	8/9/13 1:45	PJG
Aroclor-1254 [1]	0.095	0.083	mg/Kg	1		SW-846 8082A	8/6/13	8/9/13 1:45	PJG
Aroclor-1260 [1]	ND	0.083	mg/Kg	1		SW-846 8082A	8/6/13	8/9/13 1:45	PJG
Aroclor-1262 [1]	ND	0.083	mg/Kg	1		SW-846 8082A	8/6/13	8/9/13 1:45	PJG
Aroclor-1268 [1]	ND	0.083	mg/Kg	1		SW-846 8082A	8/6/13	8/9/13 1:45	PJG
Surrogates	% Recovery	Recovery Limits	Flag						
Decachlorobiphenyl [1]	95.8	30-150						8/9/13 1:45	
Decachlorobiphenyl [2]	77.8	30-150						8/9/13 1:45	
Tetrachloro-m-xylene [1]	95.9	30-150						8/9/13 1:45	
Tetrachloro-m-xylene [2]	79.6	30-150						8/9/13 1:45	

Project Location: MCLA Bowman Hall

Sample Description:

Work Order: 13H0087

Date Received: 8/2/2013

Field Sample #: BOW-CBC-106

Sampled: 8/1/2013 16:50

Sample ID: 13H0087-04

Sample Matrix: Concrete

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.087	mg/Kg	1		SW-846 8082A	8/6/13	8/9/13 1:58	PJG
Aroclor-1221 [1]	ND	0.087	mg/Kg	1		SW-846 8082A	8/6/13	8/9/13 1:58	PJG
Aroclor-1232 [1]	ND	0.087	mg/Kg	1		SW-846 8082A	8/6/13	8/9/13 1:58	PJG
Aroclor-1242 [1]	ND	0.087	mg/Kg	1		SW-846 8082A	8/6/13	8/9/13 1:58	PJG
Aroclor-1248 [1]	0.19	0.087	mg/Kg	1		SW-846 8082A	8/6/13	8/9/13 1:58	PJG
Aroclor-1254 [1]	0.38	0.087	mg/Kg	1		SW-846 8082A	8/6/13	8/9/13 1:58	PJG
Aroclor-1260 [1]	ND	0.087	mg/Kg	1		SW-846 8082A	8/6/13	8/9/13 1:58	PJG
Aroclor-1262 [1]	ND	0.087	mg/Kg	1		SW-846 8082A	8/6/13	8/9/13 1:58	PJG
Aroclor-1268 [1]	ND	0.087	mg/Kg	1		SW-846 8082A	8/6/13	8/9/13 1:58	PJG
Surrogates	% Recovery	Recovery Limits	Flag						
Decachlorobiphenyl [1]	89.6	30-150						8/9/13 1:58	
Decachlorobiphenyl [2]	73.4	30-150						8/9/13 1:58	
Tetrachloro-m-xylene [1]	93.3	30-150						8/9/13 1:58	
Tetrachloro-m-xylene [2]	77.5	30-150						8/9/13 1:58	

Project Location: MCLA Bowman Hall

Sample Description:

Work Order: 13H0087

Date Received: 8/2/2013

Field Sample #: BOW-CBC-109

Sampled: 8/1/2013 14:20

Sample ID: 13H0087-05

Sample Matrix: Concrete

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.095	mg/Kg	1		SW-846 8082A	8/6/13	8/9/13 2:11	PJG
Aroclor-1221 [1]	ND	0.095	mg/Kg	1		SW-846 8082A	8/6/13	8/9/13 2:11	PJG
Aroclor-1232 [1]	ND	0.095	mg/Kg	1		SW-846 8082A	8/6/13	8/9/13 2:11	PJG
Aroclor-1242 [1]	ND	0.095	mg/Kg	1		SW-846 8082A	8/6/13	8/9/13 2:11	PJG
Aroclor-1248 [1]	ND	0.095	mg/Kg	1		SW-846 8082A	8/6/13	8/9/13 2:11	PJG
Aroclor-1254 [1]	0.33	0.095	mg/Kg	1		SW-846 8082A	8/6/13	8/9/13 2:11	PJG
Aroclor-1260 [1]	ND	0.095	mg/Kg	1		SW-846 8082A	8/6/13	8/9/13 2:11	PJG
Aroclor-1262 [1]	ND	0.095	mg/Kg	1		SW-846 8082A	8/6/13	8/9/13 2:11	PJG
Aroclor-1268 [1]	ND	0.095	mg/Kg	1		SW-846 8082A	8/6/13	8/9/13 2:11	PJG
Surrogates	% Recovery	Recovery Limits	Flag						
Decachlorobiphenyl [1]	77.5	30-150						8/9/13 2:11	
Decachlorobiphenyl [2]	63.2	30-150						8/9/13 2:11	
Tetrachloro-m-xylene [1]	86.0	30-150						8/9/13 2:11	
Tetrachloro-m-xylene [2]	72.3	30-150						8/9/13 2:11	

Project Location: MCLA Bowman Hall

Sample Description:

Work Order: 13H0087

Date Received: 8/2/2013

Field Sample #: BOW-CBC-112

Sampled: 8/1/2013 16:10

Sample ID: 13H0087-06

Sample Matrix: Concrete

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.083	mg/Kg	1		SW-846 8082A	8/6/13	8/9/13 2:24	PJG
Aroclor-1221 [1]	ND	0.083	mg/Kg	1		SW-846 8082A	8/6/13	8/9/13 2:24	PJG
Aroclor-1232 [1]	ND	0.083	mg/Kg	1		SW-846 8082A	8/6/13	8/9/13 2:24	PJG
Aroclor-1242 [1]	ND	0.083	mg/Kg	1		SW-846 8082A	8/6/13	8/9/13 2:24	PJG
Aroclor-1248 [1]	0.14	0.083	mg/Kg	1		SW-846 8082A	8/6/13	8/9/13 2:24	PJG
Aroclor-1254 [1]	0.24	0.083	mg/Kg	1		SW-846 8082A	8/6/13	8/9/13 2:24	PJG
Aroclor-1260 [2]	0.098	0.083	mg/Kg	1		SW-846 8082A	8/6/13	8/9/13 2:24	PJG
Aroclor-1262 [1]	ND	0.083	mg/Kg	1		SW-846 8082A	8/6/13	8/9/13 2:24	PJG
Aroclor-1268 [1]	ND	0.083	mg/Kg	1		SW-846 8082A	8/6/13	8/9/13 2:24	PJG
Surrogates	% Recovery	Recovery Limits	Flag						
Decachlorobiphenyl [1]	101	30-150						8/9/13 2:24	
Decachlorobiphenyl [2]	82.2	30-150						8/9/13 2:24	
Tetrachloro-m-xylene [1]	98.8	30-150						8/9/13 2:24	
Tetrachloro-m-xylene [2]	81.2	30-150						8/9/13 2:24	

Project Location: MCLA Bowman Hall

Sample Description:

Work Order: 13H0087

Date Received: 8/2/2013

Field Sample #: BOW-CBC-115

Sampled: 8/1/2013 20:20

Sample ID: 13H0087-07

Sample Matrix: Concrete

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	1.0	mg/Kg	10		SW-846 8082A	8/6/13	8/9/13 13:20	PJG
Aroclor-1221 [1]	ND	1.0	mg/Kg	10		SW-846 8082A	8/6/13	8/9/13 13:20	PJG
Aroclor-1232 [1]	ND	1.0	mg/Kg	10		SW-846 8082A	8/6/13	8/9/13 13:20	PJG
Aroclor-1242 [1]	ND	1.0	mg/Kg	10		SW-846 8082A	8/6/13	8/9/13 13:20	PJG
Aroclor-1248 [2]	6.2	1.0	mg/Kg	10		SW-846 8082A	8/6/13	8/9/13 13:20	PJG
Aroclor-1254 [1]	3.0	1.0	mg/Kg	10		SW-846 8082A	8/6/13	8/9/13 13:20	PJG
Aroclor-1260 [1]	ND	1.0	mg/Kg	10		SW-846 8082A	8/6/13	8/9/13 13:20	PJG
Aroclor-1262 [1]	ND	1.0	mg/Kg	10		SW-846 8082A	8/6/13	8/9/13 13:20	PJG
Aroclor-1268 [1]	ND	1.0	mg/Kg	10		SW-846 8082A	8/6/13	8/9/13 13:20	PJG
Surrogates	% Recovery	Recovery Limits	Flag						
Decachlorobiphenyl [1]	69.9	30-150						8/9/13 13:20	
Decachlorobiphenyl [2]	77.7	30-150						8/9/13 13:20	
Tetrachloro-m-xylene [1]	85.4	30-150						8/9/13 13:20	
Tetrachloro-m-xylene [2]	88.5	30-150						8/9/13 13:20	

Project Location: MCLA Bowman Hall

Sample Description:

Work Order: 13H0087

Date Received: 8/2/2013

Field Sample #: BOW-CBCD-118

Sampled: 8/1/2013 00:00

Sample ID: 13H0087-08

Sample Matrix: Concrete

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.080	mg/Kg	1		SW-846 8082A	8/6/13	8/9/13 2:50	PJG
Aroclor-1221 [1]	ND	0.080	mg/Kg	1		SW-846 8082A	8/6/13	8/9/13 2:50	PJG
Aroclor-1232 [1]	ND	0.080	mg/Kg	1		SW-846 8082A	8/6/13	8/9/13 2:50	PJG
Aroclor-1242 [1]	ND	0.080	mg/Kg	1		SW-846 8082A	8/6/13	8/9/13 2:50	PJG
Aroclor-1248 [1]	0.14	0.080	mg/Kg	1		SW-846 8082A	8/6/13	8/9/13 2:50	PJG
Aroclor-1254 [1]	0.26	0.080	mg/Kg	1		SW-846 8082A	8/6/13	8/9/13 2:50	PJG
Aroclor-1260 [1]	0.15	0.080	mg/Kg	1		SW-846 8082A	8/6/13	8/9/13 2:50	PJG
Aroclor-1262 [1]	ND	0.080	mg/Kg	1		SW-846 8082A	8/6/13	8/9/13 2:50	PJG
Aroclor-1268 [1]	ND	0.080	mg/Kg	1		SW-846 8082A	8/6/13	8/9/13 2:50	PJG
Surrogates	% Recovery	Recovery Limits	Flag						
Decachlorobiphenyl [1]	101	30-150						8/9/13 2:50	
Decachlorobiphenyl [2]	82.4	30-150						8/9/13 2:50	
Tetrachloro-m-xylene [1]	90.1	30-150						8/9/13 2:50	
Tetrachloro-m-xylene [2]	74.7	30-150						8/9/13 2:50	

Project Location: MCLA Bowman Hall

Sample Description:

Work Order: 13H0087

Date Received: 8/2/2013

Field Sample #: BOW-CBCQ-119

Sampled: 8/1/2013 00:00

Sample ID: 13H0087-09

Sample Matrix: Equipment Blank Water

Polychlorinated Biphenyls By GC/ECD

Analyte	Results	RL	Units	Dilution	Flag	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.20	µg/L	1		SW-846 8082A	8/6/13	8/8/13 14:58	JMB
Aroclor-1221 [1]	ND	0.20	µg/L	1		SW-846 8082A	8/6/13	8/8/13 14:58	JMB
Aroclor-1232 [1]	ND	0.20	µg/L	1		SW-846 8082A	8/6/13	8/8/13 14:58	JMB
Aroclor-1242 [1]	ND	0.20	µg/L	1		SW-846 8082A	8/6/13	8/8/13 14:58	JMB
Aroclor-1248 [1]	ND	0.20	µg/L	1		SW-846 8082A	8/6/13	8/8/13 14:58	JMB
Aroclor-1254 [1]	ND	0.20	µg/L	1		SW-846 8082A	8/6/13	8/8/13 14:58	JMB
Aroclor-1260 [1]	ND	0.20	µg/L	1		SW-846 8082A	8/6/13	8/8/13 14:58	JMB
Aroclor-1262 [1]	ND	0.20	µg/L	1		SW-846 8082A	8/6/13	8/8/13 14:58	JMB
Aroclor-1268 [1]	ND	0.20	µg/L	1		SW-846 8082A	8/6/13	8/8/13 14:58	JMB
Surrogates	% Recovery	Recovery Limits	Flag						
Decachlorobiphenyl [1]	70.5	30-150							
Decachlorobiphenyl [2]	75.8	30-150							
Tetrachloro-m-xylene [1]	76.1	30-150							
Tetrachloro-m-xylene [2]	76.6	30-150							

Sample Extraction Data**Prep Method: SW-846 3540C-SW-846 8082A**

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
13H0087-01 [BOW-CBC-100]	B078238	2.50	10.0	08/06/13
13H0087-02 [BOW-CBC-102]	B078238	2.00	10.0	08/06/13
13H0087-03 [BOW-CBC-104]	B078238	2.40	10.0	08/06/13
13H0087-04 [BOW-CBC-106]	B078238	2.30	10.0	08/06/13
13H0087-05 [BOW-CBC-109]	B078238	2.10	10.0	08/06/13
13H0087-06 [BOW-CBC-112]	B078238	2.40	10.0	08/06/13
13H0087-07 [BOW-CBC-115]	B078238	2.00	10.0	08/06/13
13H0087-08 [BOW-CBCD-118]	B078238	2.50	10.0	08/06/13

Prep Method: SW-846 3510C-SW-846 8082A

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
13H0087-09 [BOW-CBCQ-119]	B078264	1000	10.0	08/06/13

QUALITY CONTROL
Polychlorinated Biphenyls By GC/ECD - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B078264 - SW-846 3510C
Blank (B078264-BLK1)

Prepared: 08/06/13 Analyzed: 08/08/13

Aroclor-1016	ND	0.20	µg/L							
Aroclor-1016 [2C]	ND	0.20	µg/L							
Aroclor-1221	ND	0.20	µg/L							
Aroclor-1221 [2C]	ND	0.20	µg/L							
Aroclor-1232	ND	0.20	µg/L							
Aroclor-1232 [2C]	ND	0.20	µg/L							
Aroclor-1242	ND	0.20	µg/L							
Aroclor-1242 [2C]	ND	0.20	µg/L							
Aroclor-1248	ND	0.20	µg/L							
Aroclor-1248 [2C]	ND	0.20	µg/L							
Aroclor-1254	ND	0.20	µg/L							
Aroclor-1254 [2C]	ND	0.20	µg/L							
Aroclor-1260	ND	0.20	µg/L							
Aroclor-1260 [2C]	ND	0.20	µg/L							
Aroclor-1262	ND	0.20	µg/L							
Aroclor-1262 [2C]	ND	0.20	µg/L							
Aroclor-1268	ND	0.20	µg/L							
Aroclor-1268 [2C]	ND	0.20	µg/L							
Surrogate: Decachlorobiphenyl	1.67		µg/L	2.00		83.6	30-150			
Surrogate: Decachlorobiphenyl [2C]	1.51		µg/L	2.00		75.5	30-150			
Surrogate: Tetrachloro-m-xylene	1.59		µg/L	2.00		79.3	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	1.57		µg/L	2.00		78.4	30-150			

LCS (B078264-BS1)

Prepared: 08/06/13 Analyzed: 08/08/13

Aroclor-1016	0.45	0.20	µg/L	0.500		90.6	40-140			
Aroclor-1016 [2C]	0.42	0.20	µg/L	0.500		84.2	40-140			
Aroclor-1260	0.46	0.20	µg/L	0.500		91.8	40-140			
Aroclor-1260 [2C]	0.41	0.20	µg/L	0.500		82.4	40-140			
Surrogate: Decachlorobiphenyl	1.77		µg/L	2.00		88.6	30-150			
Surrogate: Decachlorobiphenyl [2C]	1.61		µg/L	2.00		80.5	30-150			
Surrogate: Tetrachloro-m-xylene	1.72		µg/L	2.00		86.2	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	1.71		µg/L	2.00		85.5	30-150			

LCS Dup (B078264-BSD1)

Prepared: 08/06/13 Analyzed: 08/08/13

Aroclor-1016	0.48	0.20	µg/L	0.500		95.2	40-140	4.96	20	
Aroclor-1016 [2C]	0.46	0.20	µg/L	0.500		91.2	40-140	7.96	20	
Aroclor-1260	0.49	0.20	µg/L	0.500		97.6	40-140	6.12	20	
Aroclor-1260 [2C]	0.44	0.20	µg/L	0.500		87.7	40-140	6.21	20	
Surrogate: Decachlorobiphenyl	2.05		µg/L	2.00		102	30-150			
Surrogate: Decachlorobiphenyl [2C]	1.86		µg/L	2.00		93.2	30-150			
Surrogate: Tetrachloro-m-xylene	1.77		µg/L	2.00		88.7	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	1.77		µg/L	2.00		88.4	30-150			

QUALITY CONTROL
Polychlorinated Biphenyls with 3540 Soxhlet Extraction - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B078238 - SW-846 3540C
Blank (B078238-BLK1)

Prepared: 08/06/13 Analyzed: 08/07/13

Aroclor-1016	ND	0.10	mg/Kg							
Aroclor-1016 [2C]	ND	0.10	mg/Kg							
Aroclor-1221	ND	0.10	mg/Kg							
Aroclor-1221 [2C]	ND	0.10	mg/Kg							
Aroclor-1232	ND	0.10	mg/Kg							
Aroclor-1232 [2C]	ND	0.10	mg/Kg							
Aroclor-1242	ND	0.10	mg/Kg							
Aroclor-1242 [2C]	ND	0.10	mg/Kg							
Aroclor-1248	ND	0.10	mg/Kg							
Aroclor-1248 [2C]	ND	0.10	mg/Kg							
Aroclor-1254	ND	0.10	mg/Kg							
Aroclor-1254 [2C]	ND	0.10	mg/Kg							
Aroclor-1260	ND	0.10	mg/Kg							
Aroclor-1260 [2C]	ND	0.10	mg/Kg							
Aroclor-1262	ND	0.10	mg/Kg							
Aroclor-1262 [2C]	ND	0.10	mg/Kg							
Aroclor-1268	ND	0.10	mg/Kg							
Aroclor-1268 [2C]	ND	0.10	mg/Kg							
Surrogate: Decachlorobiphenyl	2.40		mg/Kg	2.00		120	30-150			
Surrogate: Decachlorobiphenyl [2C]	2.26		mg/Kg	2.00		113	30-150			
Surrogate: Tetrachloro-m-xylene	2.02		mg/Kg	2.00		101	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	2.02		mg/Kg	2.00		101	30-150			

LCS (B078238-BS1)

Prepared: 08/06/13 Analyzed: 08/07/13

Aroclor-1016	0.24	0.10	mg/Kg	0.250		97.8	40-140			
Aroclor-1016 [2C]	0.28	0.10	mg/Kg	0.250		111	40-140			
Aroclor-1260	0.24	0.10	mg/Kg	0.250		97.6	40-140			
Aroclor-1260 [2C]	0.24	0.10	mg/Kg	0.250		96.6	40-140			
Surrogate: Decachlorobiphenyl	1.03		mg/Kg	1.00		103	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.940		mg/Kg	1.00		94.0	30-150			
Surrogate: Tetrachloro-m-xylene	0.957		mg/Kg	1.00		95.7	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.947		mg/Kg	1.00		94.7	30-150			

LCS Dup (B078238-BSD1)

Prepared: 08/06/13 Analyzed: 08/07/13

Aroclor-1016	0.20	0.10	mg/Kg	0.250		78.5	40-140	21.8	30	
Aroclor-1016 [2C]	0.22	0.10	mg/Kg	0.250		87.2	40-140	24.1	30	
Aroclor-1260	0.21	0.10	mg/Kg	0.250		83.8	40-140	15.2	30	
Aroclor-1260 [2C]	0.20	0.10	mg/Kg	0.250		80.6	40-140	18.1	30	
Surrogate: Decachlorobiphenyl	0.838		mg/Kg	1.00		83.8	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.763		mg/Kg	1.00		76.3	30-150			
Surrogate: Tetrachloro-m-xylene	0.749		mg/Kg	1.00		74.9	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.741		mg/Kg	1.00		74.1	30-150			

QUALITY CONTROL
Polychlorinated Biphenyls with 3540 Soxhlet Extraction - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B078238 - SW-846 3540C

Matrix Spike (B078238-MS1)		Source: 13H0087-01		Prepared: 08/06/13 Analyzed: 08/09/13						
Aroclor-1016	0.50	0.091	mg/Kg	0.227	0.0	222	*	40-140		MS-21
Aroclor-1016 [2C]	0.85	0.091	mg/Kg	0.227	0.0	372	*	40-140		MS-21
Aroclor-1260	0.93	0.091	mg/Kg	0.227	0.52	179	*	40-140		MS-21
Aroclor-1260 [2C]	0.96	0.091	mg/Kg	0.227	0.57	171	*	40-140		MS-21
Surrogate: Decachlorobiphenyl	0.847		mg/Kg	0.909		93.2		30-150		
Surrogate: Decachlorobiphenyl [2C]	0.695		mg/Kg	0.909		76.4		30-150		
Surrogate: Tetrachloro-m-xylene	0.872		mg/Kg	0.909		95.9		30-150		
Surrogate: Tetrachloro-m-xylene [2C]	0.729		mg/Kg	0.909		80.2		30-150		

Matrix Spike Dup (B078238-MSD1)		Source: 13H0087-01		Prepared: 08/06/13		Analyzed: 08/09/13					
Aroclor-1016	0.49	0.091	mg/Kg	0.227	0.0	217	*	40-140	2.46	50	MS-21
Aroclor-1016 [2C]	0.80	0.091	mg/Kg	0.227	0.0	351	*	40-140	5.90	50	MS-21
Aroclor-1260	0.78	0.091	mg/Kg	0.227	0.52	114		40-140	17.2	50	
Aroclor-1260 [2C]	0.82	0.091	mg/Kg	0.227	0.57	109		40-140	15.9	50	
Surrogate: Decachlorobiphenyl	0.885		mg/Kg	0.909		97.3		30-150			
Surrogate: Decachlorobiphenyl [2C]	0.732		mg/Kg	0.909		80.5		30-150			
Surrogate: Tetrachloro-m-xylene	0.895		mg/Kg	0.909		98.5		30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.747		mg/Kg	0.909		82.2		30-150			

FLAG/QUALIFIER SUMMARY

*	QC result is outside of established limits.
†	Wide recovery limits established for difficult compound.
‡	Wide RPD limits established for difficult compound.
#	Data exceeded client recommended or regulatory level
	Percent recoveries and relative percent differences (RPDs) are determined by the software using values in the calculation which have not been rounded.
MS-21	Matrix spike and/or spike duplicate recovery bias high due to contribution of other Aroclors present in the source sample.

CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
<i>SW-846 8082A in Product/Solid</i>	
Aroclor-1016	CT,NH,NY,ME,NC,VA
Aroclor-1016 [2C]	CT,NH,NY,ME,NC,VA
Aroclor-1221	CT,NH,NY,ME,NC,VA
Aroclor-1221 [2C]	CT,NH,NY,ME,NC,VA
Aroclor-1232	CT,NH,NY,ME,NC,VA
Aroclor-1232 [2C]	CT,NH,NY,ME,NC,VA
Aroclor-1242	CT,NH,NY,ME,NC,VA
Aroclor-1242 [2C]	CT,NH,NY,ME,NC,VA
Aroclor-1248	CT,NH,NY,ME,NC,VA
Aroclor-1248 [2C]	CT,NH,NY,ME,NC,VA
Aroclor-1254	CT,NH,NY,ME,NC,VA
Aroclor-1254 [2C]	CT,NH,NY,ME,NC,VA
Aroclor-1260	CT,NH,NY,ME,NC,VA
Aroclor-1260 [2C]	CT,NH,NY,ME,NC,VA
<i>SW-846 8082A in Water</i>	
Aroclor-1016	CT,NH,NY,NC,ME,VA
Aroclor-1016 [2C]	CT,NH,NY,NC,ME,VA
Aroclor-1221	CT,NH,NY,NC,ME,VA
Aroclor-1221 [2C]	CT,NH,NY,NC,ME,VA
Aroclor-1232	CT,NH,NY,NC,ME,VA
Aroclor-1232 [2C]	CT,NH,NY,NC,ME,VA
Aroclor-1242	CT,NH,NY,NC,ME,VA
Aroclor-1242 [2C]	CT,NH,NY,NC,ME,VA
Aroclor-1248	CT,NH,NY,NC,ME,VA
Aroclor-1248 [2C]	CT,NH,NY,NC,ME,VA
Aroclor-1254	CT,NH,NY,NC,ME,VA
Aroclor-1254 [2C]	CT,NH,NY,NC,ME,VA
Aroclor-1260	CT,NH,NY,NC,ME,VA
Aroclor-1260 [2C]	CT,NH,NY,NC,ME,VA
Aroclor-1262	NC
Aroclor-1262 [2C]	NC
Aroclor-1268	NC
Aroclor-1268 [2C]	NC

The CON-TEST Environmental Laboratory operates under the following certifications and accreditations:

Code	Description	Number	Expires
AIHA	AIHA-LAP, LLC	100033	02/1/2014
MA	Massachusetts DEP	M-MA100	06/30/2014
CT	Connecticut Department of Public Health	PH-0567	09/30/2013
NY	New York State Department of Health	10899 NELAP	04/1/2014
NH-S	New Hampshire Environmental Lab	2516 NELAP	02/5/2014
RI	Rhode Island Department of Health	LAO00112	12/30/2013
NC	North Carolina Div. of Water Quality	652	12/31/2013
NJ	New Jersey DEP	MA007 NELAP	06/30/2014
FL	Florida Department of Health	E871027 NELAP	06/30/2014
VT	Vermont Department of Health Lead Laboratory	LL015036	07/30/2014
WA	State of Washington Department of Ecology	C2065	02/23/2014
ME	State of Maine	2011028	06/9/2015
VA	Commonwealth of Virginia	460217	12/14/2013
NH-P	New Hampshire Environmental Lab	2557 NELAP	09/6/2012



con-test
ANALYTICAL LABORATORY

Phone: 413-525-2332
Fax: 413-525-6405
Email: info@con-testlabs.com
www.con-testlabs.com

CHAIN OF CUSTODY RECORD

39 Spruce Street
East Longmeadow, MA 01028

Page 1 of 1

Company Name: Woburn 3 Curran

Telephone: _____

Address: 40 Shafsbury Rd Suite 110 Andover, MA

Project # 226296

Attention: James A. Markin

Client PO# _____
DATA DELIVERY (check all that apply)
☐ FAX ☒ EMAIL ☐ WEBSITE

Project Location: McA - Bowman Hall

Fax # _____

Sampled By: Kim Enard

Email: _____

Project Proposal Provided? (for billing purposes)
☐ yes ☐ no
proposal date _____

Collection

Format: ☒ PDF ☒ EXCEL ☐ GIS
☐ OTHER _____

Con-Test Lab ID _____

Client Sample ID / Description _____

Beginning Date/Time _____

Ending Date/Time _____

Composite _____

Grab _____

*Matrix _____

*Sample _____

*Date _____

*Time _____

*Location _____

*Weather _____

*Other _____

*Preservation _____

*Container Code _____

*Field Filtered _____

*Lab to Filter _____

*Dissolved Metals _____

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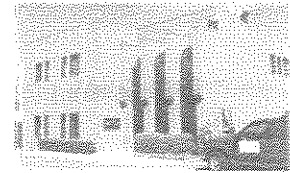
*Dissolved Metals _____

*Field Filtered _____

*Lab to Filter _____

*Dissolved Metals _____

39 Spruce St.
East Longmeadow, MA. 01028
P: 413-525-2332
F: 413-525-6405
www.contestlabs.com



Sample Receipt Checklist

CLIENT NAME: Woodard & Curran RECEIVED BY: RLF DATE: 8/2/13

1) Was the chain(s) of custody relinquished and signed? ☒ Yes ☐ No No CoC Included

2) Does the chain agree with the samples? ☒ Yes ☐ No
If not, explain:

3) Are all the samples in good condition? ☒ Yes ☐ No
If not, explain:

4) How were the samples received:

On Ice ☒ Direct from Sampling ☐ Ambient ☐ In Cooler(s) ☒

Were the samples received in Temperature Compliance of (2-6°C)? ☒ Yes ☐ No N/A

Temperature °C by Temp blank _____ Temperature °C by Temp gun 4.7°C

5) Are there Dissolved samples for the lab to filter? Yes ☐ No ☒

Who was notified _____ Date _____ Time _____

6) Are there any RUSH or SHORT HOLDING TIME samples? Yes ☐ No ☒

Who was notified _____ Date _____ Time _____

7) Location where samples are stored:

19

Permission to subcontract samples? Yes No

(Walk-in clients only) if not already approved

Client Signature: _____

8) Do all samples have the proper Acid pH: Yes No N/A

9) Do all samples have the proper Base pH: Yes No N/A

10) Was the PC notified of any discrepancies with the CoC vs the samples: Yes No N/A

Containers received at Con-Test

	# of containers		# of containers
1 Liter Amber	<u>1</u>	8 oz amber/clear jar	
500 mL Amber		4 oz amber/clear jar	
250 mL Amber (8oz amber)		2 oz amber/clear jar	<u>7</u>
1 Liter Plastic		Air Cassette	
500 mL Plastic		Hg/Hopcalite Tube	
250 mL plastic		Plastic Bag / Ziploc	
40 mL Vial - type listed below		PM 2.5 / PM 10	
Colisure / bacteria bottle		PUF Cartridge	
Dissolved Oxygen bottle		SOC Kit	
Encore		TO-17 Tubes	
Flashpoint bottle		Non-ConTest Container	
Perchlorate Kit		Other glass jar	
Other		Other	

Laboratory Comments: * Did not receive sample BOW ESE 115.

Client brought sample in per log-in (mac)

40 mL vials: # HCl _____ # Methanol _____

Doc# 277 # Bisulfate _____ # DI Water _____

Rev. 3 May 2012 # Thiosulfate _____ Unpreserved _____

Time and Date Frozen: _____

13H0087-01 BOW-CBC-100

Analyte	Results		%RPD
Aroclor-1254	0.85	0.78882	7.47
Aroclor-1260 [2C]	0.57	0.522868	8.63
Aroclor-1248	0.52	0.47962	8.08
Surrogates			
Decachlorobiphenyl	0.772	0.62774	20.6
Tetrachloro-m-xylene	0.792	0.650804	19.6

13H0087-02 BOW-CBC-102

Analyte	Results		%RPD
Aroclor-1260	0.11	0.10291	6.66
Aroclor-1254	0.14	0.124525	11.7
Aroclor-1248	0.11	0.09209	17.7
Surrogates			
Decachlorobiphenyl	0.998	0.81297	20.4
Tetrachloro-m-xylene	1.02	0.850745	18.1

13H0087-03 BOW-CBC-104

Analyte	Results		%RPD
Aroclor-1248	0.13	0.096875	29.2
Aroclor-1254	0.095	0.087975	7.68
Surrogates			
Decachlorobiphenyl	0.798	0.6482916	20.7
Tetrachloro-m-xylene	0.799	0.6631042	18.6

13H0087-04 BOW-CBC-106

Analyte	Results		%RPD
Aroclor-1254	0.38	0.3558478	6.56
Aroclor-1248	0.19	0.160113	17.1
Surrogates			
Decachlorobiphenyl	0.779	0.6382	19.9
Tetrachloro-m-xylene	0.811	0.6742827	18.4

13H0087-05 BOW-CBC-109

Analyte	Results		%RPD
Aroclor-1254	0.33	0.3262714	1.14
Surrogates			
Decachlorobiphenyl	0.738	0.6016572	20.4
Tetrachloro-m-xylene	0.819	0.6883381	17.3

13H0087-06 BOW-CBC-112

Analyte	Results		%RPD
Aroclor-1260 [2C]	0.098	9.047916E-02	7.98
Aroclor-1254	0.24	0.231875	3.44
Aroclor-1248	0.14	0.1192375	16
Surrogates			
Decachlorobiphenyl	0.838	0.6847083	20.1
Tetrachloro-m-xylene	0.823	0.676375	19.6

13H0087-07 BOW-CBC-115

Analyte	Results		%RPD
Aroclor-1248 [2C]	6.2	5.4503	12.9
Aroclor-1254	3.0	2.64435	12.6
Surrogates			
Decachlorobiphenyl	0.699	0.77665	10.5
Tetrachloro-m-xylene	0.854	0.8847	3.53

13H0087-08 BOW-CBCD-118

Analyte	Results		%RPD
Aroclor-1248	0.14	0.118956	16.3
Aroclor-1260	0.15	0.14696	2.05
Aroclor-1254	0.26	0.243468	6.57

Surrogates			
Decachlorobiphenyl	0.804	0.659108	19.8
Tetrachloro-m-xylene	0.721	0.59754	18.7

13H0087-09 BOW-CBCQ-119

Analyte	Results		%RPD
Surrogates			
Decachlorobiphenyl	1.41	1.51506	7.18
Tetrachloro-m-xylene	1.52	1.5328	0.839

B078238-BLK1 Blank

Analyte	Results		%RPD
Surrogates			
Decachlorobiphenyl	2.40	2.258695	6.07
Tetrachloro-m-xylene	2.02	2.022655	0.131

B078238-BS1 LCS

Analyte	Results		%RPD
Aroclor-1016	0.24	0.277875	14.6
Aroclor-1260	0.24	0.24149	0.619
Surrogates			
Tetrachloro-m-xylene	0.957	0.94664	1.09
Decachlorobiphenyl	1.03	0.939895	9.15

B078238-BSD1 LCS Dup

Analyte	Results		%RPD
Aroclor-1016	0.20	0.21806	8.64
Aroclor-1260	0.21	0.201475	4.14
Surrogates			
Decachlorobiphenyl	0.838	0.762705	9.41
Tetrachloro-m-xylene	0.749	0.74144	1.01

B078238-MS1 Matrix Spike

Analyte	Results		%RPD
Aroclor-1016	0.50	0.8465136	51.5
Aroclor-1260	0.93	0.9607636	3.25
Surrogates			
Tetrachloro-m-xylene	0.872	0.7289045	17.9
Decachlorobiphenyl	0.847	0.6947318	19.8

B078238-MSD1 Matrix Spike Dup

Analyte	Results		%RPD
Aroclor-1016	0.49	0.7980091	47.8
Aroclor-1260	0.78	0.8193727	4.92
Surrogates			
Decachlorobiphenyl	0.885	0.7319136	18.9
Tetrachloro-m-xylene	0.895	0.7471727	18

B078264-BLK1 Blank

Analyte	Results		%RPD
Surrogates			
Tetrachloro-m-xylene	1.59	1.56826	1.38
Decachlorobiphenyl	1.67	1.51057	10

B078264-BS1 LCS

Analyte	Results		%RPD
Aroclor-1016	0.45	0.42113	6.63
Aroclor-1260	0.46	0.4119	11
Surrogates			
Tetrachloro-m-xylene	1.72	1.70946	0.615
Decachlorobiphenyl	1.77	1.61043	9.44

B078264-BSD1 LCS Dup

Analyte	Results		%RPD
---------	---------	--	------

Aroclor-1016	0.48	0.45604	5.12
Aroclor-1260	0.49	0.43828	11.1
Surrogates			
Tetrachloro-m-xylene	1.77	1.76821	0.101
Decachlorobiphenyl	2.05	1.86365	9.52

August 20, 2013

George Franklin
Woodard & Curran - Andover, MA
40 Shattuck Road., Suite 110
Andover, MA 01810

Project Location: MCLA Bowman Hall
Client Job Number:
Project Number: 225971
Laboratory Work Order Number: 13H0092

Enclosed are results of analyses for samples received by the laboratory on August 2, 2013. If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Meghan E. Kelley
Project Manager

Woodard & Curran - Andover, MA
40 Shattuck Road., Suite 110
Andover, MA 01810
ATTN: George Franklin

REPORT DATE: 8/20/2013

PURCHASE ORDER NUMBER:

PROJECT NUMBER: 225971

ANALYTICAL SUMMARY

WORK ORDER NUMBER: 13H0092

The results of analyses performed on the following samples submitted to the CON-TEST Analytical Laboratory are found in this report.

PROJECT LOCATION: MCLA Bowman Hall

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
BOW-CBC-101	13H0092-01	Concrete		SW-846 8082A	
BOW-CBC-116	13H0092-10	Concrete		SW-846 8082A	

CASE NARRATIVE SUMMARY

All reported results are within defined laboratory quality control objectives unless listed below or otherwise qualified in this report.

SW-846 8082A

Qualifications:

Sample fingerprint does not match standard exactly. Sample was quantitated against the closest matching standard.

Analyte & Samples(s) Qualified:

Aroclor-1248, Aroclor-1248 [2C]

13H0092-10[BOW-CBC-116]

The results of analyses reported only relate to samples submitted to the Con-Test Analytical Laboratory for testing.

I certify that the analyses listed above, unless specifically listed as subcontracted, if any, were performed under my direction according to the approved methodologies listed in this document, and that based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.



Lisa A. Worthington
Project Chemist

Project Location: MCLA Bowman Hall

Sample Description:

Work Order: 13H0092

Date Received: 8/2/2013

Field Sample #: BOW-CBC-101

Sampled: 8/1/2013 14:40

Sample ID: 13H0092-01

Sample Matrix: Concrete

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.093	mg/Kg	1		SW-846 8082A	8/13/13	8/15/13 2:32	MJC
Aroclor-1221 [1]	ND	0.093	mg/Kg	1		SW-846 8082A	8/13/13	8/15/13 2:32	MJC
Aroclor-1232 [1]	ND	0.093	mg/Kg	1		SW-846 8082A	8/13/13	8/15/13 2:32	MJC
Aroclor-1242 [1]	ND	0.093	mg/Kg	1		SW-846 8082A	8/13/13	8/15/13 2:32	MJC
Aroclor-1248 [1]	ND	0.093	mg/Kg	1		SW-846 8082A	8/13/13	8/15/13 2:32	MJC
Aroclor-1254 [1]	ND	0.093	mg/Kg	1		SW-846 8082A	8/13/13	8/15/13 2:32	MJC
Aroclor-1260 [2]	ND	0.093	mg/Kg	1		SW-846 8082A	8/13/13	8/15/13 2:32	MJC
Aroclor-1262 [1]	ND	0.093	mg/Kg	1		SW-846 8082A	8/13/13	8/15/13 2:32	MJC
Aroclor-1268 [1]	ND	0.093	mg/Kg	1		SW-846 8082A	8/13/13	8/15/13 2:32	MJC
Surrogates	% Recovery	Recovery Limits	Flag						
Decachlorobiphenyl [1]	52.8	30-150						8/15/13 2:32	
Decachlorobiphenyl [2]	45.3	30-150						8/15/13 2:32	
Tetrachloro-m-xylene [1]	55.9	30-150						8/15/13 2:32	
Tetrachloro-m-xylene [2]	49.0	30-150						8/15/13 2:32	

Project Location: MCLA Bowman Hall

Sample Description:

Work Order: 13H0092

Date Received: 8/2/2013

Field Sample #: BOW-CBC-116

Sampled: 8/1/2013 20:10

Sample ID: 13H0092-10

Sample Matrix: Concrete

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.090	mg/Kg	1		SW-846 8082A	8/13/13	8/15/13 2:45	MJC
Aroclor-1221 [1]	ND	0.090	mg/Kg	1		SW-846 8082A	8/13/13	8/15/13 2:45	MJC
Aroclor-1232 [1]	ND	0.090	mg/Kg	1		SW-846 8082A	8/13/13	8/15/13 2:45	MJC
Aroclor-1242 [1]	ND	0.090	mg/Kg	1		SW-846 8082A	8/13/13	8/15/13 2:45	MJC
Aroclor-1248 [1]	0.26	0.090	mg/Kg	1	O-04	SW-846 8082A	8/13/13	8/15/13 2:45	MJC
Aroclor-1254 [1]	ND	0.090	mg/Kg	1		SW-846 8082A	8/13/13	8/15/13 2:45	MJC
Aroclor-1260 [1]	ND	0.090	mg/Kg	1		SW-846 8082A	8/13/13	8/15/13 2:45	MJC
Aroclor-1262 [1]	ND	0.090	mg/Kg	1		SW-846 8082A	8/13/13	8/15/13 2:45	MJC
Aroclor-1268 [1]	ND	0.090	mg/Kg	1		SW-846 8082A	8/13/13	8/15/13 2:45	MJC
Surrogates	% Recovery	Recovery Limits	Flag						
Decachlorobiphenyl [1]	97.2	30-150						8/15/13 2:45	
Decachlorobiphenyl [2]	69.3	30-150						8/15/13 2:45	
Tetrachloro-m-xylene [1]	91.0	30-150						8/15/13 2:45	
Tetrachloro-m-xylene [2]	79.5	30-150						8/15/13 2:45	

Sample Extraction Data

Prep Method: SW-846 3540C-SW-846 8082A

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
13H0092-01 [BOW-CBC-101]	B078713	2.14	10.0	08/13/13
13H0092-10 [BOW-CBC-116]	B078713	2.21	10.0	08/13/13

QUALITY CONTROL
Polychlorinated Biphenyls with 3540 Soxhlet Extraction - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
---------	--------	-----------------	-------	-------------	---------------	------	-------------	-----	-----------	-------

Batch B078713 - SW-846 3540C
Blank (B078713-BLK1)

Prepared: 08/13/13 Analyzed: 08/15/13

Aroclor-1016	ND	0.10	mg/Kg							
Aroclor-1016 [2C]	ND	0.10	mg/Kg							
Aroclor-1221	ND	0.10	mg/Kg							
Aroclor-1221 [2C]	ND	0.10	mg/Kg							
Aroclor-1232	ND	0.10	mg/Kg							
Aroclor-1232 [2C]	ND	0.10	mg/Kg							
Aroclor-1242	ND	0.10	mg/Kg							
Aroclor-1242 [2C]	ND	0.10	mg/Kg							
Aroclor-1248	ND	0.10	mg/Kg							
Aroclor-1248 [2C]	ND	0.10	mg/Kg							
Aroclor-1254	ND	0.10	mg/Kg							
Aroclor-1254 [2C]	ND	0.10	mg/Kg							
Aroclor-1260	ND	0.10	mg/Kg							
Aroclor-1260 [2C]	ND	0.10	mg/Kg							
Aroclor-1262	ND	0.10	mg/Kg							
Aroclor-1262 [2C]	ND	0.10	mg/Kg							
Aroclor-1268	ND	0.10	mg/Kg							
Aroclor-1268 [2C]	ND	0.10	mg/Kg							
Surrogate: Decachlorobiphenyl	0.888		mg/Kg	1.00		88.8	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.641		mg/Kg	1.00		64.1	30-150			
Surrogate: Tetrachloro-m-xylene	0.915		mg/Kg	1.00		91.5	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.802		mg/Kg	1.00		80.2	30-150			

LCS (B078713-BS1)

Prepared: 08/13/13 Analyzed: 08/15/13

Aroclor-1016	0.25	0.10	mg/Kg	0.250		98.2	40-140			
Aroclor-1016 [2C]	0.24	0.10	mg/Kg	0.250		96.3	40-140			
Aroclor-1260	0.23	0.10	mg/Kg	0.250		91.3	40-140			
Aroclor-1260 [2C]	0.24	0.10	mg/Kg	0.250		96.1	40-140			
Surrogate: Decachlorobiphenyl	0.950		mg/Kg	1.00		95.0	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.837		mg/Kg	1.00		83.7	30-150			
Surrogate: Tetrachloro-m-xylene	0.947		mg/Kg	1.00		94.7	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.821		mg/Kg	1.00		82.1	30-150			

LCS Dup (B078713-BSD1)

Prepared: 08/13/13 Analyzed: 08/15/13

Aroclor-1016	0.24	0.10	mg/Kg	0.250		97.8	40-140	0.414	30	
Aroclor-1016 [2C]	0.24	0.10	mg/Kg	0.250		96.4	40-140	0.185	30	
Aroclor-1260	0.23	0.10	mg/Kg	0.250		92.6	40-140	1.42	30	
Aroclor-1260 [2C]	0.26	0.10	mg/Kg	0.250		104	40-140	7.81	30	
Surrogate: Decachlorobiphenyl	0.953		mg/Kg	1.00		95.3	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.664		mg/Kg	1.00		66.4	30-150			
Surrogate: Tetrachloro-m-xylene	0.858		mg/Kg	1.00		85.8	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.748		mg/Kg	1.00		74.8	30-150			

QUALITY CONTROL
Polychlorinated Biphenyls with 3540 Soxhlet Extraction - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
---------	--------	-----------------	-------	-------------	---------------	------	-------------	-----	-----------	-------

Batch B078713 - SW-846 3540C
Matrix Spike (B078713-MS1)
Source: 13H0092-01

Prepared: 08/13/13 Analyzed: 08/15/13

Aroclor-1016	0.27	0.096	mg/Kg	0.240	0.0	113	40-140			
Aroclor-1016 [2C]	0.26	0.096	mg/Kg	0.240	0.0	109	40-140			
Aroclor-1260	0.31	0.096	mg/Kg	0.240	0.054	108	40-140			
Aroclor-1260 [2C]	0.34	0.096	mg/Kg	0.240	0.060	116	40-140			
Surrogate: Decachlorobiphenyl	0.904		mg/Kg	0.962		94.0	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.784		mg/Kg	0.962		81.5	30-150			
Surrogate: Tetrachloro-m-xylene	0.855		mg/Kg	0.962		89.0	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.763		mg/Kg	0.962		79.4	30-150			

Matrix Spike Dup (B078713-MSD1)
Source: 13H0092-01

Prepared: 08/13/13 Analyzed: 08/15/13

Aroclor-1016	0.28	0.092	mg/Kg	0.230	0.0	123	40-140	4.43	50	
Aroclor-1016 [2C]	0.27	0.092	mg/Kg	0.230	0.0	119	40-140	3.83	50	
Aroclor-1260	0.32	0.092	mg/Kg	0.230	0.054	117	40-140	2.92	50	
Aroclor-1260 [2C]	0.34	0.092	mg/Kg	0.230	0.060	121	40-140	0.334	50	
Surrogate: Decachlorobiphenyl	0.912		mg/Kg	0.922		99.0	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.638		mg/Kg	0.922		69.2	30-150			
Surrogate: Tetrachloro-m-xylene	0.842		mg/Kg	0.922		91.4	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.750		mg/Kg	0.922		81.4	30-150			

FLAG/QUALIFIER SUMMARY

*	QC result is outside of established limits.
†	Wide recovery limits established for difficult compound.
‡	Wide RPD limits established for difficult compound.
#	Data exceeded client recommended or regulatory level
	Percent recoveries and relative percent differences (RPDs) are determined by the software using values in the calculation which have not been rounded.
	No results have been blank subtracted unless specified in the case narrative section.
O-04	Sample fingerprint does not match standard exactly. Sample was quantitated against the closest matching standard.

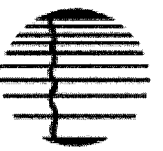
CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
<i>SW-846 8082A in Product/Solid</i>	
Aroclor-1016	CT,NH,NY,ME,NC,VA
Aroclor-1016 [2C]	CT,NH,NY,ME,NC,VA
Aroclor-1221	CT,NH,NY,ME,NC,VA
Aroclor-1221 [2C]	CT,NH,NY,ME,NC,VA
Aroclor-1232	CT,NH,NY,ME,NC,VA
Aroclor-1232 [2C]	CT,NH,NY,ME,NC,VA
Aroclor-1242	CT,NH,NY,ME,NC,VA
Aroclor-1242 [2C]	CT,NH,NY,ME,NC,VA
Aroclor-1248	CT,NH,NY,ME,NC,VA
Aroclor-1248 [2C]	CT,NH,NY,ME,NC,VA
Aroclor-1254	CT,NH,NY,ME,NC,VA
Aroclor-1254 [2C]	CT,NH,NY,ME,NC,VA
Aroclor-1260	CT,NH,NY,ME,NC,VA
Aroclor-1260 [2C]	CT,NH,NY,ME,NC,VA

The CON-TEST Environmental Laboratory operates under the following certifications and accreditations:

Code	Description	Number	Expires
AIHA	AIHA-LAP, LLC	100033	02/1/2014
MA	Massachusetts DEP	M-MA100	06/30/2014
CT	Connecticut Department of Public Health	PH-0567	09/30/2013
NY	New York State Department of Health	10899 NELAP	04/1/2014
NH-S	New Hampshire Environmental Lab	2516 NELAP	02/5/2014
RI	Rhode Island Department of Health	LAO00112	12/30/2013
NC	North Carolina Div. of Water Quality	652	12/31/2013
NJ	New Jersey DEP	MA007 NELAP	06/30/2014
FL	Florida Department of Health	E871027 NELAP	06/30/2014
VT	Vermont Department of Health Lead Laboratory	LL015036	07/30/2014
WA	State of Washington Department of Ecology	C2065	02/23/2014
ME	State of Maine	2011028	06/9/2015
VA	Commonwealth of Virginia	460217	12/14/2013
NH-P	New Hampshire Environmental Lab	2557 NELAP	09/6/2012



con-test

ANALYTICAL LABORATORY

Phone: 413-525-2332
 Fax: 413-525-6405
 Email: info@contestlabs.com
 www.contestlabs.com

Rev 04.05.12

13H0092

CHAIN OF CUSTODY RECORD

39 Spruce Street
 East Longmeadow, MA 01028

Page 1 of 2

Company Name: Woodland 3 Curran

Telephone:

Address: 40 Shutebury Rd Suite 110 Andover, MA

Project # 226296

Client PO#

Attention: J Havel, A Martin

DATA DELIVERY (check all that apply)
☐ FAX ☒ EMAIL ☐ WEBSITE

Project Location: WMA - Bowman Hall

Fax #

Sampled By: Kim Rivard

Email:

Project Proposal Provided? (for billing purposes)
☐ yes ☐ no
 proposal date

Format:
☒ PDF ☒ EXCEL ☐ OGIS
☐ OTHER

Collection

☐ "Enhanced Data Package"

Con-Test Lab ID (laboratory use only)

Beginning Date/Time

Ending Date/Time

Composite

Grab

*Matrix

Lab Code

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Comments: ① HOLD PENDING FURTHER INSPECTION

EAH 8082/35406 R L 2 lbs

Please use the following codes to let Con-Test know if a specific sample may be high in concentration in Matrix/Conc. Code Box:
 H - High; M - Medium; L - Low; C - Clean; U - Unknown

Relinquished by (signature)

8/1/13

8/1/13

Turnaround ☐ 7-Day ☐ 10-Day ☐ Other

Detection Limit Requirements

Massachusetts:

Is your project MCP or RCP?

NEIAC & AIHA-LAP, LLC Accredited

Received by (signature)

8/1/13

8/1/13

Turnaround ☐ 7-Day ☐ 10-Day ☐ Other

Detection Limit Requirements

Massachusetts:

Is your project MCP or RCP?

NEIAC & AIHA-LAP, LLC Accredited

Relinquished by (signature)

8/1/13

8/1/13

Turnaround ☐ 7-Day ☐ 10-Day ☐ Other

Detection Limit Requirements

Massachusetts:

Is your project MCP or RCP?

NEIAC & AIHA-LAP, LLC Accredited

Received by (signature)

8/1/13

8/1/13

Turnaround ☐ 7-Day ☐ 10-Day ☐ Other

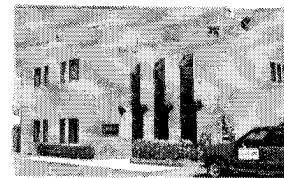
Detection Limit Requirements

Massachusetts:

Is your project MCP or RCP?

NEIAC & AIHA-LAP, LLC Accredited

39 Spruce St.
East Longmeadow, MA. 01028
P: 413-525-2332
F: 413-525-6405
www.contestlabs.com



Sample Receipt Checklist

CLIENT NAME: Woodard & Curran RECEIVED BY: RLF DATE: 8/2/13

1) Was the chain(s) of custody relinquished and signed? Yes No No CoC Included

2) Does the chain agree with the samples? Yes No

If not, explain:

3) Are all the samples in good condition? Yes No

If not, explain:

4) How were the samples received:

On Ice ☒ Direct from Sampling ☐ Ambient ☐ In Cooler(s) ☒

Were the samples received in Temperature Compliance of (2-6°C)? Yes No N/A

Temperature °C by Temp blank _____ Temperature °C by Temp gun 4.7°C

5) Are there Dissolved samples for the lab to filter? Yes No

Who was notified _____ Date _____ Time _____

6) Are there any RUSH or SHORT HOLDING TIME samples? Yes No

Who was notified _____ Date _____ Time _____

7) Location where samples are stored:

19

Permission to subcontract samples? Yes No
(Walk-in clients only) if not already approved
Client Signature: _____

8) Do all samples have the proper Acid pH: Yes No N/A

9) Do all samples have the proper Base pH: Yes No N/A

10) Was the PC notified of any discrepancies with the CoC vs the samples: Yes No N/A

Containers received at Con-Test

	# of containers		# of containers
1 Liter Amber		8 oz amber/clear jar	
500 mL Amber		4 oz amber/clear jar	
250 mL Amber (8oz amber)		2 oz amber/clear jar	<u>9</u>
1 Liter Plastic		Air Cassette	
500 mL Plastic		Hg/Hopcalite Tube	
250 mL plastic		Plastic Bag / Ziploc	
40 mL Vial - type listed below		PM 2.5 / PM 10	
Colisure / bacteria bottle		PUF Cartridge	
Dissolved Oxygen bottle		SOC Kit	
Encore		TO-17 Tubes	
Flashpoint bottle		Non-ConTest Container	
Perchlorate Kit		Other glass jar	
Other		Other	

Laboratory Comments: Did not receive samples BOW-CBC-116 or BOW-CBR-117. Sample 105 says HOLD on container, does not say HOLD on CoC.

40 mL vials: # HCl _____ # Methanol _____

Doc# 277 # Bisulfate _____ # DI Water _____

Rev. 3 May 2012 # Thiosulfate _____ Unpreserved _____

Time and Date Frozen: _____

Meghan Kelley

From: Amy Martin [amartin@woodardcurran.com]
Sent: Tuesday, August 13, 2013 3:40 PM
To: Meghan Kelley
Subject: RE: MCLA Bowman Hall samples?

Great. Can you please release samples ending with ID numbers -101 and -116 for PCB analysis at 5-day turnaround time?

-----Original Message-----

From: Meghan Kelley [mailto:mkelley@contestlabs.com]
Sent: Tuesday, August 13, 2013 3:35 PM
To: Amy Martin
Subject: RE: MCLA Bowman Hall samples?

Samples are on hold.

-----Original Message-----

From: Amy Martin [mailto:amartin@woodardcurran.com]
Sent: Tuesday, August 13, 2013 3:27 PM
To: mkelley@contestlabs.com
Subject: MCLA Bowman Hall samples?

Hi Meghan

You received a set of concrete samples for PCB analysis from Kim Rinard on Friday August 2 for our MCLA Bowman Hall project. These were analyzed and reported last week. I'm trying to track down an additional set of contingency samples that Kim collected on the same day from the same site (sorry - I can't seem to reach Kim by phone today)... I'm not sure if Kim still has these samples in her possession, or whether she submitted these samples to ConTest on hold. Do you know whether you have these, it would be an additional 11(?) concrete samples collected on August 1?

Thank you,
Amy

13H0092-01 BOW-CBC-101

Analyte	Results		%RPD
Aroclor-1260 [2C]	0.060	5.376635E-02	11
Surrogates			
Decachlorobiphenyl	0.493	0.4238224	15.1
Tetrachloro-m-xylene	0.523	0.4576589	13.3

13H0092-10 BOW-CBC-116

Analyte	Results		%RPD
Aroclor-1248	0.26	0.1969412	27.6
Surrogates			
Decachlorobiphenyl	0.880	0.627104	33.6
Tetrachloro-m-xylene	0.824	0.7191855	13.6

B078713-BLK1 Blank

Analyte	Results		%RPD
Surrogates			
Decachlorobiphenyl	0.888	0.64057	32.4
Tetrachloro-m-xylene	0.915	0.8015	13.2

B078713-BS1 LCS

Analyte	Results		%RPD
Aroclor-1016	0.25	0.240675	3.8
Aroclor-1260	0.23	0.24021	4.34
Surrogates			
Tetrachloro-m-xylene	0.947	0.820885	14.3
Decachlorobiphenyl	0.950	0.83724	12.6

B078713-BSD1 LCS Dup

Analyte	Results		%RPD
Aroclor-1260	0.23	0.25973	12.1
Aroclor-1016	0.24	0.24112	0.466
Surrogates			
Decachlorobiphenyl	0.953	0.66433	35.7
Tetrachloro-m-xylene	0.858	0.747985	13.7

B078713-MS1 Matrix Spike

Analyte	Results		%RPD
Aroclor-1016	0.27	0.262851	2.68
Aroclor-1260	0.31	0.3374327	8.47
Surrogates			
Decachlorobiphenyl	0.904	0.7836154	14.3
Tetrachloro-m-xylene	0.855	0.7632452	11.3

B078713-MSD1 Matrix Spike Dup

Analyte	Results		%RPD
Aroclor-1016	0.28	0.2731244	2.49
Aroclor-1260	0.32	0.3385622	5.64
Surrogates			
Tetrachloro-m-xylene	0.842	0.750258	11.5
Decachlorobiphenyl	0.912	0.6382442	35.3

October 22, 2013

Jeff Hamel
Woodard & Curran - Andover, MA
40 Shattuck Road., Suite 110
Andover, MA 01810

Project Location: MCLA-Bowman
Client Job Number:
Project Number: 226296
Laboratory Work Order Number: 13J0667

Enclosed are results of analyses for samples received by the laboratory on October 17, 2013. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink that reads "Meghan E. Kelley". The signature is written in a cursive, flowing style.

Meghan E. Kelley
Project Manager

Woodard & Curran - Andover, MA
40 Shattuck Road., Suite 110
Andover, MA 01810
ATTN: Jeff Hamel

REPORT DATE: 10/22/2013

PURCHASE ORDER NUMBER:

PROJECT NUMBER: 226296

ANALYTICAL SUMMARY

WORK ORDER NUMBER: 13J0667

The results of analyses performed on the following samples submitted to the CON-TEST Analytical Laboratory are found in this report.

PROJECT LOCATION: MCLA-Bowman

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
BOW-CBC-121	13J0667-01	Concrete		SW-846 8082A	
BOW-CBC-123	13J0667-02	Concrete		SW-846 8082A	

CASE NARRATIVE SUMMARY

All reported results are within defined laboratory quality control objectives unless listed below or otherwise qualified in this report.

The results of analyses reported only relate to samples submitted to the Con-Test Analytical Laboratory for testing.

I certify that the analyses listed above, unless specifically listed as subcontracted, if any, were performed under my direction according to the approved methodologies listed in this document, and that based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.

A handwritten signature in black ink, appearing to read "Daren J. Damboragian", is written over a light gray rectangular background.

Daren J. Damboragian
Laboratory Manager

Project Location: MCLA-Bowman

Sample Description:

Work Order: 13J0667

Date Received: 10/17/2013

Field Sample #: BOW-CBC-121

Sampled: 10/15/2013 18:00

Sample ID: 13J0667-01

Sample Matrix: Concrete

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.095	mg/Kg	1		SW-846 8082A	10/21/13	10/22/13 11:41	PJG
Aroclor-1221 [1]	ND	0.095	mg/Kg	1		SW-846 8082A	10/21/13	10/22/13 11:41	PJG
Aroclor-1232 [1]	ND	0.095	mg/Kg	1		SW-846 8082A	10/21/13	10/22/13 11:41	PJG
Aroclor-1242 [1]	ND	0.095	mg/Kg	1		SW-846 8082A	10/21/13	10/22/13 11:41	PJG
Aroclor-1248 [1]	ND	0.095	mg/Kg	1		SW-846 8082A	10/21/13	10/22/13 11:41	PJG
Aroclor-1254 [1]	ND	0.095	mg/Kg	1		SW-846 8082A	10/21/13	10/22/13 11:41	PJG
Aroclor-1260 [1]	ND	0.095	mg/Kg	1		SW-846 8082A	10/21/13	10/22/13 11:41	PJG
Aroclor-1262 [1]	ND	0.095	mg/Kg	1		SW-846 8082A	10/21/13	10/22/13 11:41	PJG
Aroclor-1268 [1]	ND	0.095	mg/Kg	1		SW-846 8082A	10/21/13	10/22/13 11:41	PJG
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
Decachlorobiphenyl [1]	105	30-150						10/22/13 11:41	
Decachlorobiphenyl [2]	101	30-150						10/22/13 11:41	
Tetrachloro-m-xylene [1]	91.6	30-150						10/22/13 11:41	
Tetrachloro-m-xylene [2]	98.6	30-150						10/22/13 11:41	

Project Location: MCLA-Bowman

Sample Description:

Work Order: 13J0667

Date Received: 10/17/2013

Field Sample #: BOW-CBC-123

Sampled: 10/15/2013 18:10

Sample ID: 13J0667-02

Sample Matrix: Concrete

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.090	mg/Kg	1		SW-846 8082A	10/21/13	10/22/13 11:54	PJG
Aroclor-1221 [1]	ND	0.090	mg/Kg	1		SW-846 8082A	10/21/13	10/22/13 11:54	PJG
Aroclor-1232 [1]	ND	0.090	mg/Kg	1		SW-846 8082A	10/21/13	10/22/13 11:54	PJG
Aroclor-1242 [2]	0.90	0.090	mg/Kg	1		SW-846 8082A	10/21/13	10/22/13 11:54	PJG
Aroclor-1248 [1]	ND	0.090	mg/Kg	1		SW-846 8082A	10/21/13	10/22/13 11:54	PJG
Aroclor-1254 [1]	ND	0.090	mg/Kg	1		SW-846 8082A	10/21/13	10/22/13 11:54	PJG
Aroclor-1260 [1]	ND	0.090	mg/Kg	1		SW-846 8082A	10/21/13	10/22/13 11:54	PJG
Aroclor-1262 [1]	ND	0.090	mg/Kg	1		SW-846 8082A	10/21/13	10/22/13 11:54	PJG
Aroclor-1268 [1]	ND	0.090	mg/Kg	1		SW-846 8082A	10/21/13	10/22/13 11:54	PJG
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
Decachlorobiphenyl [1]	105	30-150						10/22/13 11:54	
Decachlorobiphenyl [2]	101	30-150						10/22/13 11:54	
Tetrachloro-m-xylene [1]	95.8	30-150						10/22/13 11:54	
Tetrachloro-m-xylene [2]	102	30-150						10/22/13 11:54	

Sample Extraction Data

Prep Method: SW-846 3540C-SW-846 8082A

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
13J0667-01 [BOW-CBC-121]	B083299	2.10	10.0	10/21/13
13J0667-02 [BOW-CBC-123]	B083299	2.22	10.0	10/21/13

QUALITY CONTROL
Polychlorinated Biphenyls with 3540 Soxhlet Extraction - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B083299 - SW-846 3540C
Blank (B083299-BLK1)

Prepared: 10/21/13 Analyzed: 10/22/13

Aroclor-1016	ND	0.10	mg/Kg							
Aroclor-1016 [2C]	ND	0.10	mg/Kg							
Aroclor-1221	ND	0.10	mg/Kg							
Aroclor-1221 [2C]	ND	0.10	mg/Kg							
Aroclor-1232	ND	0.10	mg/Kg							
Aroclor-1232 [2C]	ND	0.10	mg/Kg							
Aroclor-1242	ND	0.10	mg/Kg							
Aroclor-1242 [2C]	ND	0.10	mg/Kg							
Aroclor-1248	ND	0.10	mg/Kg							
Aroclor-1248 [2C]	ND	0.10	mg/Kg							
Aroclor-1254	ND	0.10	mg/Kg							
Aroclor-1254 [2C]	ND	0.10	mg/Kg							
Aroclor-1260	ND	0.10	mg/Kg							
Aroclor-1260 [2C]	ND	0.10	mg/Kg							
Aroclor-1262	ND	0.10	mg/Kg							
Aroclor-1262 [2C]	ND	0.10	mg/Kg							
Aroclor-1268	ND	0.10	mg/Kg							
Aroclor-1268 [2C]	ND	0.10	mg/Kg							
Surrogate: Decachlorobiphenyl	0.978		mg/Kg	1.00		97.8	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.931		mg/Kg	1.00		93.1	30-150			
Surrogate: Tetrachloro-m-xylene	0.939		mg/Kg	1.00		93.9	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	1.00		mg/Kg	1.00		100	30-150			

LCS (B083299-BS1)

Prepared: 10/21/13 Analyzed: 10/22/13

Aroclor-1016	0.24	0.10	mg/Kg	0.250		94.9	40-140			
Aroclor-1016 [2C]	0.25	0.10	mg/Kg	0.250		99.6	40-140			
Aroclor-1260	0.24	0.10	mg/Kg	0.250		94.9	40-140			
Aroclor-1260 [2C]	0.26	0.10	mg/Kg	0.250		104	40-140			
Surrogate: Decachlorobiphenyl	1.02		mg/Kg	1.00		102	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.980		mg/Kg	1.00		98.0	30-150			
Surrogate: Tetrachloro-m-xylene	0.919		mg/Kg	1.00		91.9	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.980		mg/Kg	1.00		98.0	30-150			

LCS Dup (B083299-BSD1)

Prepared: 10/21/13 Analyzed: 10/22/13

Aroclor-1016	0.22	0.10	mg/Kg	0.250		87.0	40-140	8.68	30	
Aroclor-1016 [2C]	0.22	0.10	mg/Kg	0.250		87.9	40-140	12.5	30	
Aroclor-1260	0.20	0.10	mg/Kg	0.250		80.8	40-140	16.0	30	
Aroclor-1260 [2C]	0.22	0.10	mg/Kg	0.250		88.7	40-140	15.5	30	
Surrogate: Decachlorobiphenyl	0.804		mg/Kg	1.00		80.4	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.766		mg/Kg	1.00		76.6	30-150			
Surrogate: Tetrachloro-m-xylene	0.784		mg/Kg	1.00		78.4	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.832		mg/Kg	1.00		83.2	30-150			

QUALITY CONTROL
Polychlorinated Biphenyls with 3540 Soxhlet Extraction - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B083299 - SW-846 3540C
Matrix Spike (B083299-MS1)
Source: 13J0667-01

Prepared: 10/21/13 Analyzed: 10/22/13

Aroclor-1016	0.24	0.095	mg/Kg	0.238	0.0	99.1	40-140			
Aroclor-1016 [2C]	0.24	0.095	mg/Kg	0.238	0.0	99.8	40-140			
Aroclor-1260	0.25	0.095	mg/Kg	0.238	0.0	106	40-140			
Aroclor-1260 [2C]	0.28	0.095	mg/Kg	0.238	0.0	117	40-140			
Surrogate: Decachlorobiphenyl	0.941		mg/Kg	0.952		98.8	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.909		mg/Kg	0.952		95.4	30-150			
Surrogate: Tetrachloro-m-xylene	0.847		mg/Kg	0.952		88.9	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.915		mg/Kg	0.952		96.0	30-150			

Matrix Spike Dup (B083299-MSD1)
Source: 13J0667-01

Prepared: 10/21/13 Analyzed: 10/22/13

Aroclor-1016	0.23	0.095	mg/Kg	0.238	0.0	97.1	40-140	2.04	50	
Aroclor-1016 [2C]	0.25	0.095	mg/Kg	0.238	0.0	104	40-140	4.46	50	
Aroclor-1260	0.26	0.095	mg/Kg	0.238	0.0	111	40-140	4.12	50	
Aroclor-1260 [2C]	0.29	0.095	mg/Kg	0.238	0.0	123	40-140	4.41	50	
Surrogate: Decachlorobiphenyl	0.974		mg/Kg	0.952		102	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.945		mg/Kg	0.952		99.2	30-150			
Surrogate: Tetrachloro-m-xylene	0.874		mg/Kg	0.952		91.8	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.943		mg/Kg	0.952		99.0	30-150			

FLAG/QUALIFIER SUMMARY

- * QC result is outside of established limits.
- † Wide recovery limits established for difficult compound.
- ‡ Wide RPD limits established for difficult compound.
- # Data exceeded client recommended or regulatory level

Percent recoveries and relative percent differences (RPDs) are determined by the software using values in the calculation which have not been rounded.

No results have been blank subtracted unless specified in the case narrative section.

CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
<i>SW-846 8082A in Product/Solid</i>	
Aroclor-1016	CT,NH,NY,ME,NC,VA
Aroclor-1016 [2C]	CT,NH,NY,ME,NC,VA
Aroclor-1221	CT,NH,NY,ME,NC,VA
Aroclor-1221 [2C]	CT,NH,NY,ME,NC,VA
Aroclor-1232	CT,NH,NY,ME,NC,VA
Aroclor-1232 [2C]	CT,NH,NY,ME,NC,VA
Aroclor-1242	CT,NH,NY,ME,NC,VA
Aroclor-1242 [2C]	CT,NH,NY,ME,NC,VA
Aroclor-1248	CT,NH,NY,ME,NC,VA
Aroclor-1248 [2C]	CT,NH,NY,ME,NC,VA
Aroclor-1254	CT,NH,NY,ME,NC,VA
Aroclor-1254 [2C]	CT,NH,NY,ME,NC,VA
Aroclor-1260	CT,NH,NY,ME,NC,VA
Aroclor-1260 [2C]	CT,NH,NY,ME,NC,VA

The CON-TEST Environmental Laboratory operates under the following certifications and accreditations:

Code	Description	Number	Expires
AIHA	AIHA-LAP, LLC	100033	02/1/2014
MA	Massachusetts DEP	M-MA100	06/30/2014
CT	Connecticut Department of Public Health	PH-0567	09/30/2015
NY	New York State Department of Health	10899 NELAP	04/1/2014
NH-S	New Hampshire Environmental Lab	2516 NELAP	02/5/2014
RI	Rhode Island Department of Health	LAO00112	12/30/2013
NC	North Carolina Div. of Water Quality	652	12/31/2013
NJ	New Jersey DEP	MA007 NELAP	06/30/2014
FL	Florida Department of Health	E871027 NELAP	06/30/2014
VT	Vermont Department of Health Lead Laboratory	LL015036	07/30/2014
WA	State of Washington Department of Ecology	C2065	02/23/2014
ME	State of Maine	2011028	06/9/2015
VA	Commonwealth of Virginia	460217	12/14/2013
NH-P	New Hampshire Environmental Lab	2557 NELAP	09/6/2014

39 Spruce St.
East Longmeadow, MA. 01028
P: 413-525-2332
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www.contestlabs.com



Page 1 of 2



Sample Receipt Checklist

CLIENT NAME: Woodard & Curran RECEIVED BY: KOB DATE: 10-17-13

1) Was the chain(s) of custody relinquished and signed? ☒ Yes No No CoC Included

2) Does the chain agree with the samples? ☒ Yes No

If not, explain:

3) Are all the samples in good condition? ☒ Yes No

If not, explain:

4) How were the samples received:

On Ice ☒ Direct from Sampling ☐ Ambient ☐ In Cooler(s) ☒

Were the samples received in Temperature Compliance of (2-6°C)? ☒ Yes No N/A

Temperature °C by Temp blank _____ Temperature °C by Temp gun 4.2°

5) Are there Dissolved samples for the lab to filter? Yes ☒ No

Who was notified _____ Date _____ Time _____

6) Are there any RUSH or SHORT HOLDING TIME samples? ☒ Yes No

Who was notified _____ Date _____ Time _____

7) Location where samples are stored:

19

Permission to subcontract samples? Yes No
(Walk-in clients only) if not already approved
Client Signature: _____

8) Do all samples have the proper Acid pH: Yes No ☒ N/A

9) Do all samples have the proper Base pH: Yes No ☒ N/A

10) Was the PC notified of any discrepancies with the CoC vs the samples: Yes No ☒ N/A

Containers received at Con-Test

	# of containers		# of containers
1 Liter Amber		8 oz amber/clear jar	
500 mL Amber		4 oz amber/clear jar	
250 mL Amber (8oz amber)		2 oz amber/clear jar	<u>2</u>
1 Liter Plastic		Plastic Bag / Ziploc	
500 mL Plastic		SOC Kit	
250 mL plastic		Non-ConTest Container	
40 mL Vial - type listed below		Perchlorate Kit	
Colisure / bacteria bottle		Flashpoint bottle	
Dissolved Oxygen bottle		Other glass jar	
Encore		Other	

Laboratory Comments:

40 mL vials: # HCl _____ # Methanol _____

Bisulfate _____ # DI Water _____

Thiosulfate _____ Unpreserved _____

Time and Date Frozen:

Doc# 277

Rev. 4 August 2013

Login Sample Receipt Checklist
(Rejection Criteria Listing - Using Sample Acceptance Policy)
Any False statement will be brought to the attention of Client

<u>Question</u>	<u>Answer (True/False)</u>		<u>Comment</u>
	T/F/NA		
1) The cooler's custody seal, if present, is intact.	NA		
2) The cooler or samples do not appear to have been compromised or tampered with.	T		
3) Samples were received on ice.	T		
4) Cooler Temperature is acceptable.	T		
5) Cooler Temperature is recorded.	T		
6) COC is filled out in ink and legible.	T		
7) COC is filled out with all pertinent information.	T		
8) Field Sampler's name present on COC.	T		
9) There are no discrepancies between the sample IDs on the container and the COC.	T		
10) Samples are received within Holding Time.	T		
11) Sample containers have legible labels.	T		
12) Containers are not broken or leaking.	T		
13) Air Cassettes are not broken/open.	NA		
14) Sample collection date/times are provided.	T		
15) Appropriate sample containers are used.	T		
16) Proper collection media used.	T		
17) No headspace sample bottles are completely filled.	T		
18) There is sufficient volume for all requested analyses, including any requested MS/MSDs.	T		
19) Trip blanks provided if applicable.	NA		
20) VOA sample vials do not have head space or bubble is <6mm (1/4") in diameter.	NA		
21) Samples do not require splitting or compositing.	T		

Doc #277 Rev. 4 August 2013 Who notified of False statements?
 Log-In Technician Initials: **KOB**

Date/Time: Date/Time: **10-17-13 1330**

October 24, 2013

Jeff Hamel
Woodard & Curran - Andover, MA
40 Shattuck Road., Suite 110
Andover, MA 01810

Project Location: MCLA - Bowman Hall
Client Job Number:
Project Number: 226296
Laboratory Work Order Number: 13J0674

Enclosed are results of analyses for samples received by the laboratory on October 17, 2013. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink, reading "Meghan E. Kelley". The signature is written in a cursive, flowing style.

Meghan E. Kelley
Project Manager

Woodard & Curran - Andover, MA
40 Shattuck Road., Suite 110
Andover, MA 01810
ATTN: Jeff Hamel

REPORT DATE: 10/24/2013

PURCHASE ORDER NUMBER:

PROJECT NUMBER: 226296

ANALYTICAL SUMMARY

WORK ORDER NUMBER: 13J0674

The results of analyses performed on the following samples submitted to the CON-TEST Analytical Laboratory are found in this report.

PROJECT LOCATION: MCLA - Bowman Hall

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
BOW-CBK-132	13J0674-01	Caulk	red/brown 304	SW-846 8082A	
BOW-CBK-133	13J0674-02	Caulk	lt grey/white 302	SW-846 8082A	
BOW-CBK-134	13J0674-03	Caulk	lt grey/white 301	SW-846 8082A	
BOW-CBK-135	13J0674-04	Caulk	grey 210A	SW-846 8082A	
BOW-CBK-136	13J0674-05	Caulk	red/brown 114	SW-846 8082A	
BOW-CBK-146	13J0674-06	Caulk	red/brown B09	SW-846 8082A	

CASE NARRATIVE SUMMARY

All reported results are within defined laboratory quality control objectives unless listed below or otherwise qualified in this report.

SW-846 8082A**Qualifications:**

The surrogate recovery for this sample is not available due to sample dilution below the surrogate reporting limit required from high analyte concentration and/or matrix interferences.

Analyte & Samples(s) Qualified:

Decachlorobiphenyl, Decachlorobiphenyl [2C], Tetrachloro-m-xylene, Tetrachloro-m-xylene [2C]

13J0674-01RE1[BOW-CBK-132], 13J0674-06[BOW-CBK-146]

The results of analyses reported only relate to samples submitted to the Con-Test Analytical Laboratory for testing.

I certify that the analyses listed above, unless specifically listed as subcontracted, if any, were performed under my direction according to the approved methodologies listed in this document, and that based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.



Michael A. Erickson
Laboratory Director

Project Location: MCLA - Bowman Hall

Sample Description: red/brown 304

Work Order: 13J0674

Date Received: 10/17/2013

Field Sample #: BOW-CBK-132

Sampled: 10/15/2013 13:10

Sample ID: 13J0674-01

Sample Matrix: Caulk

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	23	mg/Kg	50		SW-846 8082A	10/21/13	10/23/13 19:19	WSD
Aroclor-1221 [1]	ND	23	mg/Kg	50		SW-846 8082A	10/21/13	10/23/13 19:19	WSD
Aroclor-1232 [1]	ND	23	mg/Kg	50		SW-846 8082A	10/21/13	10/23/13 19:19	WSD
Aroclor-1242 [1]	ND	23	mg/Kg	50		SW-846 8082A	10/21/13	10/23/13 19:19	WSD
Aroclor-1248 [1]	ND	23	mg/Kg	50		SW-846 8082A	10/21/13	10/23/13 19:19	WSD
Aroclor-1254 [2]	80	23	mg/Kg	50		SW-846 8082A	10/21/13	10/23/13 19:19	WSD
Aroclor-1260 [1]	ND	23	mg/Kg	50		SW-846 8082A	10/21/13	10/23/13 19:19	WSD
Aroclor-1262 [1]	ND	23	mg/Kg	50		SW-846 8082A	10/21/13	10/23/13 19:19	WSD
Aroclor-1268 [1]	ND	23	mg/Kg	50		SW-846 8082A	10/21/13	10/23/13 19:19	WSD
Surrogates	% Recovery	Recovery Limits			Flag/Qual				
Decachlorobiphenyl [1]	*	30-150			S-01			10/23/13 19:19	
Decachlorobiphenyl [2]	*	30-150			S-01			10/23/13 19:19	
Tetrachloro-m-xylene [1]	*	30-150			S-01			10/23/13 19:19	
Tetrachloro-m-xylene [2]	*	30-150			S-01			10/23/13 19:19	

Project Location: MCLA - Bowman Hall

Sample Description: lt grey/white 302

Work Order: 13J0674

Date Received: 10/17/2013

Field Sample #: BOW-CBK-133

Sampled: 10/15/2013 13:20

Sample ID: 13J0674-02

Sample Matrix: Caulk

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.73	mg/Kg	4		SW-846 8082A	10/21/13	10/23/13 19:33	WSD
Aroclor-1221 [1]	ND	0.73	mg/Kg	4		SW-846 8082A	10/21/13	10/23/13 19:33	WSD
Aroclor-1232 [1]	ND	0.73	mg/Kg	4		SW-846 8082A	10/21/13	10/23/13 19:33	WSD
Aroclor-1242 [1]	ND	0.73	mg/Kg	4		SW-846 8082A	10/21/13	10/23/13 19:33	WSD
Aroclor-1248 [2]	6.0	0.73	mg/Kg	4		SW-846 8082A	10/21/13	10/23/13 19:33	WSD
Aroclor-1254 [2]	4.1	0.73	mg/Kg	4		SW-846 8082A	10/21/13	10/23/13 19:33	WSD
Aroclor-1260 [1]	ND	0.73	mg/Kg	4		SW-846 8082A	10/21/13	10/23/13 19:33	WSD
Aroclor-1262 [1]	ND	0.73	mg/Kg	4		SW-846 8082A	10/21/13	10/23/13 19:33	WSD
Aroclor-1268 [1]	ND	0.73	mg/Kg	4		SW-846 8082A	10/21/13	10/23/13 19:33	WSD
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
Decachlorobiphenyl [1]	77.7	30-150						10/23/13 19:33	
Decachlorobiphenyl [2]	78.9	30-150						10/23/13 19:33	
Tetrachloro-m-xylene [1]	85.8	30-150						10/23/13 19:33	
Tetrachloro-m-xylene [2]	92.3	30-150						10/23/13 19:33	

Project Location: MCLA - Bowman Hall

Sample Description: lt grey/white 301

Work Order: 13J0674

Date Received: 10/17/2013

Field Sample #: BOW-CBK-134

Sampled: 10/15/2013 13:25

Sample ID: 13J0674-03

Sample Matrix: Caulk

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	1.9	mg/Kg	5		SW-846 8082A	10/21/13	10/24/13 8:31	WSD
Aroclor-1221 [1]	ND	1.9	mg/Kg	5		SW-846 8082A	10/21/13	10/24/13 8:31	WSD
Aroclor-1232 [1]	ND	1.9	mg/Kg	5		SW-846 8082A	10/21/13	10/24/13 8:31	WSD
Aroclor-1242 [1]	ND	1.9	mg/Kg	5		SW-846 8082A	10/21/13	10/24/13 8:31	WSD
Aroclor-1248 [1]	13	1.9	mg/Kg	5		SW-846 8082A	10/21/13	10/24/13 8:31	WSD
Aroclor-1254 [2]	9.8	1.9	mg/Kg	5		SW-846 8082A	10/21/13	10/24/13 8:31	WSD
Aroclor-1260 [2]	3.1	1.9	mg/Kg	5		SW-846 8082A	10/21/13	10/24/13 8:31	WSD
Aroclor-1262 [1]	ND	1.9	mg/Kg	5		SW-846 8082A	10/21/13	10/24/13 8:31	WSD
Aroclor-1268 [1]	ND	1.9	mg/Kg	5		SW-846 8082A	10/21/13	10/24/13 8:31	WSD
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
Decachlorobiphenyl [1]	106	30-150						10/24/13 8:31	
Decachlorobiphenyl [2]	107	30-150						10/24/13 8:31	
Tetrachloro-m-xylene [1]	118	30-150						10/24/13 8:31	
Tetrachloro-m-xylene [2]	121	30-150						10/24/13 8:31	

Project Location: MCLA - Bowman Hall

Sample Description: grey 210A

Work Order: 13J0674

Date Received: 10/17/2013

Field Sample #: BOW-CBK-135

Sampled: 10/15/2013 13:45

Sample ID: 13J0674-04

Sample Matrix: Caulk

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	1.3	mg/Kg	2		SW-846 8082A	10/21/13	10/24/13 8:45	WSD
Aroclor-1221 [1]	ND	1.3	mg/Kg	2		SW-846 8082A	10/21/13	10/24/13 8:45	WSD
Aroclor-1232 [1]	ND	1.3	mg/Kg	2		SW-846 8082A	10/21/13	10/24/13 8:45	WSD
Aroclor-1242 [1]	ND	1.3	mg/Kg	2		SW-846 8082A	10/21/13	10/24/13 8:45	WSD
Aroclor-1248 [1]	16	1.3	mg/Kg	2		SW-846 8082A	10/21/13	10/24/13 8:45	WSD
Aroclor-1254 [2]	11	1.3	mg/Kg	2		SW-846 8082A	10/21/13	10/24/13 8:45	WSD
Aroclor-1260 [2]	2.6	1.3	mg/Kg	2		SW-846 8082A	10/21/13	10/24/13 8:45	WSD
Aroclor-1262 [1]	ND	1.3	mg/Kg	2		SW-846 8082A	10/21/13	10/24/13 8:45	WSD
Aroclor-1268 [1]	ND	1.3	mg/Kg	2		SW-846 8082A	10/21/13	10/24/13 8:45	WSD
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
Decachlorobiphenyl [1]	108	30-150							
Decachlorobiphenyl [2]	104	30-150							
Tetrachloro-m-xylene [1]	116	30-150							
Tetrachloro-m-xylene [2]	115	30-150							

Project Location: MCLA - Bowman Hall

Sample Description: red/brown 114

Work Order: 13J0674

Date Received: 10/17/2013

Field Sample #: BOW-CBK-136

Sampled: 10/15/2013 14:00

Sample ID: 13J0674-05

Sample Matrix: Caulk

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	7.7	mg/Kg	5		SW-846 8082A	10/21/13	10/24/13 8:59	WSD
Aroclor-1221 [1]	ND	7.7	mg/Kg	5		SW-846 8082A	10/21/13	10/24/13 8:59	WSD
Aroclor-1232 [1]	ND	7.7	mg/Kg	5		SW-846 8082A	10/21/13	10/24/13 8:59	WSD
Aroclor-1242 [1]	ND	7.7	mg/Kg	5		SW-846 8082A	10/21/13	10/24/13 8:59	WSD
Aroclor-1248 [1]	ND	7.7	mg/Kg	5		SW-846 8082A	10/21/13	10/24/13 8:59	WSD
Aroclor-1254 [2]	94	7.7	mg/Kg	5		SW-846 8082A	10/21/13	10/24/13 8:59	WSD
Aroclor-1260 [2]	59	7.7	mg/Kg	5		SW-846 8082A	10/21/13	10/24/13 8:59	WSD
Aroclor-1262 [1]	ND	7.7	mg/Kg	5		SW-846 8082A	10/21/13	10/24/13 8:59	WSD
Aroclor-1268 [2]	25	7.7	mg/Kg	5		SW-846 8082A	10/21/13	10/24/13 8:59	WSD
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
Decachlorobiphenyl [1]	114	30-150						10/24/13 8:59	
Decachlorobiphenyl [2]	116	30-150						10/24/13 8:59	
Tetrachloro-m-xylene [1]	120	30-150						10/24/13 8:59	
Tetrachloro-m-xylene [2]	123	30-150						10/24/13 8:59	

Project Location: MCLA - Bowman Hall

Sample Description: red/brown B09

Work Order: 13J0674

Date Received: 10/17/2013

Field Sample #: BOW-CBK-146

Sampled: 10/15/2013 16:40

Sample ID: 13J0674-06

Sample Matrix: Caulk

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	10	mg/Kg	50		SW-846 8082A	10/18/13	10/24/13 12:01	WSD
Aroclor-1221 [1]	ND	10	mg/Kg	50		SW-846 8082A	10/18/13	10/24/13 12:01	WSD
Aroclor-1232 [1]	ND	10	mg/Kg	50		SW-846 8082A	10/18/13	10/24/13 12:01	WSD
Aroclor-1242 [1]	ND	10	mg/Kg	50		SW-846 8082A	10/18/13	10/24/13 12:01	WSD
Aroclor-1248 [2]	29	10	mg/Kg	50		SW-846 8082A	10/18/13	10/24/13 12:01	WSD
Aroclor-1254 [2]	47	10	mg/Kg	50		SW-846 8082A	10/18/13	10/24/13 12:01	WSD
Aroclor-1260 [2]	160	10	mg/Kg	50		SW-846 8082A	10/18/13	10/24/13 12:01	WSD
Aroclor-1262 [1]	ND	10	mg/Kg	50		SW-846 8082A	10/18/13	10/24/13 12:01	WSD
Aroclor-1268 [1]	ND	10	mg/Kg	50		SW-846 8082A	10/18/13	10/24/13 12:01	WSD
Surrogates	% Recovery	Recovery Limits			Flag/Qual				
Decachlorobiphenyl [1]	*	30-150			S-01			10/24/13 12:01	
Decachlorobiphenyl [2]	*	30-150			S-01			10/24/13 12:01	
Tetrachloro-m-xylene [1]	*	30-150			S-01			10/24/13 12:01	
Tetrachloro-m-xylene [2]	*	30-150			S-01			10/24/13 12:01	

Sample Extraction Data

Prep Method: SW-846 3540C-SW-846 8082A

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
13J0674-06 [BOW-CBK-146]	B083228	0.482	10.0	10/18/13

Prep Method: SW-846 3540C-SW-846 8082A

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
13J0674-01RE1 [BOW-CBK-132]	B083290	0.215	10.0	10/21/13
13J0674-02RE1 [BOW-CBK-133]	B083290	0.550	10.0	10/21/13
13J0674-03RE1 [BOW-CBK-134]	B083290	0.263	10.0	10/21/13
13J0674-04RE1 [BOW-CBK-135]	B083290	0.152	10.0	10/21/13
13J0674-05RE1 [BOW-CBK-136]	B083290	0.0650	10.0	10/21/13

QUALITY CONTROL
Polychlorinated Biphenyls with 3540 Soxhlet Extraction - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B083228 - SW-846 3540C
Blank (B083228-BLK1)

Prepared: 10/18/13 Analyzed: 10/24/13

Aroclor-1016	ND	0.20	mg/Kg							
Aroclor-1016 [2C]	ND	0.20	mg/Kg							
Aroclor-1221	ND	0.20	mg/Kg							
Aroclor-1221 [2C]	ND	0.20	mg/Kg							
Aroclor-1232	ND	0.20	mg/Kg							
Aroclor-1232 [2C]	ND	0.20	mg/Kg							
Aroclor-1242	ND	0.20	mg/Kg							
Aroclor-1242 [2C]	ND	0.20	mg/Kg							
Aroclor-1248	ND	0.20	mg/Kg							
Aroclor-1248 [2C]	ND	0.20	mg/Kg							
Aroclor-1254	ND	0.20	mg/Kg							
Aroclor-1254 [2C]	ND	0.20	mg/Kg							
Aroclor-1260	ND	0.20	mg/Kg							
Aroclor-1260 [2C]	ND	0.20	mg/Kg							
Aroclor-1262	ND	0.20	mg/Kg							
Aroclor-1262 [2C]	ND	0.20	mg/Kg							
Aroclor-1268	ND	0.20	mg/Kg							
Aroclor-1268 [2C]	ND	0.20	mg/Kg							
Surrogate: Decachlorobiphenyl	3.90		mg/Kg	4.00		97.6	30-150			
Surrogate: Decachlorobiphenyl [2C]	3.80		mg/Kg	4.00		95.1	30-150			
Surrogate: Tetrachloro-m-xylene	4.24		mg/Kg	4.00		106	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	4.14		mg/Kg	4.00		104	30-150			

LCS (B083228-BS1)

Prepared: 10/18/13 Analyzed: 10/24/13

Aroclor-1016	3.8	0.20	mg/Kg	4.00		95.0	40-140			
Aroclor-1016 [2C]	3.5	0.20	mg/Kg	4.00		87.3	40-140			
Aroclor-1260	3.6	0.20	mg/Kg	4.00		89.9	40-140			
Aroclor-1260 [2C]	3.7	0.20	mg/Kg	4.00		93.2	40-140			
Surrogate: Decachlorobiphenyl	3.97		mg/Kg	4.00		99.2	30-150			
Surrogate: Decachlorobiphenyl [2C]	3.88		mg/Kg	4.00		96.9	30-150			
Surrogate: Tetrachloro-m-xylene	3.97		mg/Kg	4.00		99.4	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	3.91		mg/Kg	4.00		97.8	30-150			

LCS Dup (B083228-BSD1)

Prepared: 10/18/13 Analyzed: 10/24/13

Aroclor-1016	4.7	0.20	mg/Kg	4.00		116	40-140	20.3	30	
Aroclor-1016 [2C]	3.8	0.20	mg/Kg	4.00		96.0	40-140	9.50	30	
Aroclor-1260	3.9	0.20	mg/Kg	4.00		97.8	40-140	8.42	30	
Aroclor-1260 [2C]	4.0	0.20	mg/Kg	4.00		101	40-140	8.12	30	
Surrogate: Decachlorobiphenyl	4.08		mg/Kg	4.00		102	30-150			
Surrogate: Decachlorobiphenyl [2C]	4.03		mg/Kg	4.00		101	30-150			
Surrogate: Tetrachloro-m-xylene	4.47		mg/Kg	4.00		112	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	4.37		mg/Kg	4.00		109	30-150			

QUALITY CONTROL
Polychlorinated Biphenyls with 3540 Soxhlet Extraction - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B083290 - SW-846 3540C
Blank (B083290-BLK1)

Prepared: 10/21/13 Analyzed: 10/23/13

Aroclor-1016	ND	0.20	mg/Kg							
Aroclor-1016 [2C]	ND	0.20	mg/Kg							
Aroclor-1221	ND	0.20	mg/Kg							
Aroclor-1221 [2C]	ND	0.20	mg/Kg							
Aroclor-1232	ND	0.20	mg/Kg							
Aroclor-1232 [2C]	ND	0.20	mg/Kg							
Aroclor-1242	ND	0.20	mg/Kg							
Aroclor-1242 [2C]	ND	0.20	mg/Kg							
Aroclor-1248	ND	0.20	mg/Kg							
Aroclor-1248 [2C]	ND	0.20	mg/Kg							
Aroclor-1254	ND	0.20	mg/Kg							
Aroclor-1254 [2C]	ND	0.20	mg/Kg							
Aroclor-1260	ND	0.20	mg/Kg							
Aroclor-1260 [2C]	ND	0.20	mg/Kg							
Aroclor-1262	ND	0.20	mg/Kg							
Aroclor-1262 [2C]	ND	0.20	mg/Kg							
Aroclor-1268	ND	0.20	mg/Kg							
Aroclor-1268 [2C]	ND	0.20	mg/Kg							
Surrogate: Decachlorobiphenyl	4.21		mg/Kg	4.00		105	30-150			
Surrogate: Decachlorobiphenyl [2C]	3.87		mg/Kg	4.00		96.7	30-150			
Surrogate: Tetrachloro-m-xylene	4.07		mg/Kg	4.00		102	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	3.95		mg/Kg	4.00		98.7	30-150			

LCS (B083290-BS1)

Prepared: 10/21/13 Analyzed: 10/23/13

Aroclor-1016	4.3	0.20	mg/Kg	4.00		107	40-140			
Aroclor-1016 [2C]	3.9	0.20	mg/Kg	4.00		97.1	40-140			
Aroclor-1260	4.2	0.20	mg/Kg	4.00		104	40-140			
Aroclor-1260 [2C]	4.1	0.20	mg/Kg	4.00		103	40-140			
Surrogate: Decachlorobiphenyl	4.55		mg/Kg	4.00		114	30-150			
Surrogate: Decachlorobiphenyl [2C]	4.25		mg/Kg	4.00		106	30-150			
Surrogate: Tetrachloro-m-xylene	4.47		mg/Kg	4.00		112	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	4.40		mg/Kg	4.00		110	30-150			

LCS Dup (B083290-BSD1)

Prepared: 10/21/13 Analyzed: 10/23/13

Aroclor-1016	3.7	0.20	mg/Kg	4.00		93.7	40-140	13.0	30	
Aroclor-1016 [2C]	3.4	0.20	mg/Kg	4.00		84.8	40-140	13.5	30	
Aroclor-1260	3.5	0.20	mg/Kg	4.00		88.6	40-140	16.3	30	
Aroclor-1260 [2C]	3.6	0.20	mg/Kg	4.00		89.9	40-140	13.4	30	
Surrogate: Decachlorobiphenyl	3.79		mg/Kg	4.00		94.7	30-150			
Surrogate: Decachlorobiphenyl [2C]	3.60		mg/Kg	4.00		90.1	30-150			
Surrogate: Tetrachloro-m-xylene	3.87		mg/Kg	4.00		96.7	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	3.87		mg/Kg	4.00		96.6	30-150			

FLAG/QUALIFIER SUMMARY

*	QC result is outside of established limits.
†	Wide recovery limits established for difficult compound.
‡	Wide RPD limits established for difficult compound.
#	Data exceeded client recommended or regulatory level
	Percent recoveries and relative percent differences (RPDs) are determined by the software using values in the calculation which have not been rounded.
	No results have been blank subtracted unless specified in the case narrative section.
S-01	The surrogate recovery for this sample is not available due to sample dilution below the surrogate reporting limit required from high analyte concentration and/or matrix interferences.

CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
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No certified Analyses included in this Report

The CON-TEST Environmental Laboratory operates under the following certifications and accreditations:

Code	Description	Number	Expires
AIHA	AIHA-LAP, LLC	100033	02/1/2014
MA	Massachusetts DEP	M-MA100	06/30/2014
CT	Connecticut Department of Public Health	PH-0567	09/30/2015
NY	New York State Department of Health	10899 NELAP	04/1/2014
NH-S	New Hampshire Environmental Lab	2516 NELAP	02/5/2014
RI	Rhode Island Department of Health	LAO00112	12/30/2013
NC	North Carolina Div. of Water Quality	652	12/31/2013
NJ	New Jersey DEP	MA007 NELAP	06/30/2014
FL	Florida Department of Health	E871027 NELAP	06/30/2014
VT	Vermont Department of Health Lead Laboratory	LL015036	07/30/2014
WA	State of Washington Department of Ecology	C2065	02/23/2014
ME	State of Maine	2011028	06/9/2015
VA	Commonwealth of Virginia	460217	12/14/2013
NH-P	New Hampshire Environmental Lab	2557 NELAP	09/6/2014



Phone: 413-525-2332
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Email: info@con-testlabs.com
www.con-testlabs.com

CHAIN OF CUSTODY RECORD

39 Spruce Street
East Longmeadow, MA 01028

Page 1 of 1

Company Name: Woodland 3 Corran

Telephone:

Address: 40 Southwick Rd Site 110 Andover, MA

Project # 226296

Client PO#

Attention: J. Howard, C. Franklin, K. Renard

DATA DELIVERY (check all that apply)
☐ FAX ☐ EMAIL ☐ WEBSITE

Project Location: WALP-Bowman Hall

Fax #

Sampled By: Kim Renard

Email:

Project Proposal Provided? (for billing purposes)
☐ Yes ☐ No
proposal date

Format: ☐ PDF ☒ EXCEL ☐ GIS
☐ OTHER

Collection: ☐ "Enhanced Data Package"

Con-Test Lab ID (Laboratory use only)

Client Sample ID / Description

Beginning Date/Time

Ending Date/Time

Composite

Grab

*Matrix Code

*Lab Code

*Preservation

*Matrix Code:

GW= groundwater

WW= wastewater

DW= drinking water

A= air

S= soil/solid

SL= sludge

O= other

*Preservation:

I= Ice

H= HCL

M= Methanol

N= Nitric Acid

S= Sulfuric Acid

B= Sodium bisulfate

X= Na hydroxide

T= Na thiosulfate

O= Other

*Matrix Code:

GW= groundwater

WW= wastewater

DW= drinking water

A= air

S= soil/solid

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O= Other

*Matrix Code:

GW= groundwater

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DW= drinking water

A= air

S= soil/solid

SL= sludge

O= other

*Preservation:

I= Ice

H= HCL

M= Methanol

N= Nitric Acid

S= Sulfuric Acid

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X= Na hydroxide

T= Na thiosulfate

O= Other

*Matrix Code:

GW= groundwater

WW= wastewater

DW= drinking water

A= air

S= soil/solid

SL= sludge

O= other

*Preservation:

I= Ice

H= HCL

M= Methanol

N= Nitric Acid

S= Sulfuric Acid

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X= Na hydroxide

T= Na thiosulfate

O= Other

*Matrix Code:

GW= groundwater

WW= wastewater

DW= drinking water

A= air

S= soil/solid

SL= sludge

O= other

*Preservation:

I= Ice

H= HCL

M= Methanol

N= Nitric Acid

S= Sulfuric Acid

B= Sodium bisulfate

X= Na hydroxide

T= Na thiosulfate

O= Other

*Matrix Code:

GW= groundwater

WW= wastewater

DW= drinking water

A= air

S= soil/solid

SL= sludge

O= other

*Preservation:

I= Ice

H= HCL

M= Methanol

N= Nitric Acid

S= Sulfuric Acid

B= Sodium bisulfate

X= Na hydroxide

T= Na thiosulfate

O= Other

*Matrix Code:

GW= groundwater

WW= wastewater

DW= drinking water

A= air

S= soil/solid

SL= sludge

O= other

*Preservation:

I= Ice

H= HCL

M= Methanol

N= Nitric Acid

S= Sulfuric Acid

B= Sodium bisulfate

X= Na hydroxide

T= Na thiosulfate

O= Other

*Matrix Code:

GW= groundwater

WW= wastewater

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O= Other

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O= Other

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WW= wastewater

DW= drinking water

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O= other

*Preservation:

I= Ice

H= HCL

M= Methanol

N= Nitric Acid

S= Sulfuric Acid

B= Sodium bisulfate

X= Na hydroxide

T= Na thiosulfate

O= Other

*Matrix Code:

Sample Receipt Checklist

CLIENT NAME: Woodard & Curran RECEIVED BY: KOB DATE: 10-17-13

1) Was the chain(s) of custody relinquished and signed? Yes No No CoC Included

2) Does the chain agree with the samples? Yes No

If not, explain:

3) Are all the samples in good condition? Yes No

If not, explain:

4) How were the samples received:

On Ice ☒ Direct from Sampling ☐ Ambient ☐ In Cooler(s) ☒

Were the samples received in Temperature Compliance of (2-6°C)? Yes No N/A

Temperature °C by Temp blank _____ Temperature °C by Temp gun 4.2°C

5) Are there Dissolved samples for the lab to filter? Yes No

Who was notified _____ Date _____ Time _____

6) Are there any RUSH or SHORT HOLDING TIME samples? Yes No

Who was notified _____ Date _____ Time _____

7) Location where samples are stored:

19

Permission to subcontract samples? Yes No

(Walk-in clients only) if not already approved

Client Signature: _____

8) Do all samples have the proper Acid pH: Yes No N/A

9) Do all samples have the proper Base pH: Yes No N/A

10) Was the PC notified of any discrepancies with the CoC vs the samples: Yes No N/A

Containers received at Con-Test

	# of containers		# of containers
1 Liter Amber		8 oz amber/clear jar	
500 mL Amber		4 oz amber/clear jar	
250 mL Amber (8oz amber)		2 oz amber/clear jar	<u>6</u>
1 Liter Plastic		Plastic Bag / Ziploc	
500 mL Plastic		SOC Kit	
250 mL plastic		Non-ConTest Container	
40 mL Vial - type listed below		Perchlorate Kit	
Colisure / bacteria bottle		Flashpoint bottle	
Dissolved Oxygen bottle		Other glass jar	
Encore		Other	

Laboratory Comments:

40 mL vials: # HCl _____ # Methanol _____

Doc# 277 # Bisulfate _____ # DI Water _____

Rev. 4 August 2013 # Thiosulfate _____ Unpreserved _____

Time and Date Frozen:

Login Sample Receipt Checklist

(Rejection Criteria Listing - Using Sample Acceptance Policy)

Any False statement will be brought to the attention of Client

Question	Answer (True/False)		Comment
	T/F/NA		
1) The cooler's custody seal, if present, is intact.	NA		
2) The cooler or samples do not appear to have been compromised or tampered with.	T		
3) Samples were received on ice.	T		
4) Cooler Temperature is acceptable.	T		
5) Cooler Temperature is recorded.	T		
6) COC is filled out in ink and legible.	T		
7) COC is filled out with all pertinent information.	T		
8) Field Sampler's name present on COC.	T		
9) There are no discrepancies between the sample IDs on the container and the COC.	T		
10) Samples are received within Holding Time.	T		
11) Sample containers have legible labels.	T		
12) Containers are not broken or leaking.	T		
13) Air Cassettes are not broken/open.	NA		
14) Sample collection date/times are provided.	T		
15) Appropriate sample containers are used.	T		
16) Proper collection media used.	T		
17) No headspace sample bottles are completely filled.	T		
18) There is sufficient volume for all requested analyses, including any requested MS/MSDs.	T		
19) Trip blanks provided if applicable.	NA		
20) VOA sample vials do not have head space or bubble is <6mm (1/4") in diameter.	NA		
21) Samples do not require splitting or compositing.	T		

Doc #277 Rev. 4 August 2013

Who notified of False statements?

Log-In Technician Initials: KOB

Date/Time:

Date/Time: 10-17-13 1330

13J0674-01RE1 BOW-CBK-132

Analyte	Results		%RPD
Aroclor-1254 [2C]	80	78.46279	1.94

13J0674-02RE1 BOW-CBK-133

Analyte	Results		%RPD
Aroclor-1248 [2C]	6.0	5.793963	3.49
Aroclor-1254 [2C]	4.1	3.939127	4
Surrogates			
Decachlorobiphenyl	2.82	2.868582	1.71
Tetrachloro-m-xylene	3.12	3.354836	7.25

13J0674-03RE1 BOW-CBK-134

Analyte	Results		%RPD
Aroclor-1248	13	12.3403	5.21
Aroclor-1254 [2C]	9.8	7.224904	30.3
Aroclor-1260 [2C]	3.1	2.948669	5
Surrogates			
Tetrachloro-m-xylene	8.94	9.226616	3.16
Decachlorobiphenyl	8.05	8.126235	0.943

13J0674-04RE1 BOW-CBK-135

Analyte	Results		%RPD
Aroclor-1260 [2C]	2.6	2.476316	4.87
Aroclor-1248	16	15.23592	4.89
Aroclor-1254 [2C]	11	10.37868	5.81
Surrogates			
Tetrachloro-m-xylene	15.2	15.14053	0.392
Decachlorobiphenyl	14.3	13.73868	4

13J0674-05RE1 BOW-CBK-136

Analyte	Results		%RPD
Aroclor-1254 [2C]	94	91.26385	2.95
Aroclor-1260 [2C]	59	51.87846	12.8
Aroclor-1268 [2C]	25	27.20769	8.46
Surrogates			
Decachlorobiphenyl	35.1	35.54462	1.26
Tetrachloro-m-xylene	36.8	37.91385	2.98

13J0674-06 BOW-CBK-146

Analyte	Results		%RPD
Aroclor-1260 [2C]	160	148.221	7.64
Aroclor-1248 [2C]	29	27.0944	6.79
Aroclor-1254 [2C]	47	33.75934	32.8

B083228-BLK1 Blank

Analyte	Results		%RPD
Surrogates			
Decachlorobiphenyl	3.90	3.8049	2.47
Tetrachloro-m-xylene	4.24	4.14352	2.3

B083228-BS1 LCS

Analyte	Results		%RPD
Aroclor-1016	3.8	3.49312	8.42
Aroclor-1260	3.6	3.72762	3.48
Surrogates			
Decachlorobiphenyl	3.97	3.8751	2.42
Tetrachloro-m-xylene	3.97	3.91214	1.47

B083228-BSD1 LCS Dup

Analyte	Results		%RPD
Aroclor-1260	3.9	4.04302	3.6
Aroclor-1016	4.7	3.84158	20.1

Surrogates			
Decachlorobiphenyl	4.08	4.02788	1.29
Tetrachloro-m-xylene	4.47	4.36692	2.33

B083290-BLK1 Blank

Analyte	Results		%RPD
Surrogates			
Tetrachloro-m-xylene	4.07	3.94632	3.09
Decachlorobiphenyl	4.21	3.86632	8.51

B083290-BS1 LCS

Analyte	Results		%RPD
Aroclor-1016	4.3	3.8846	10.2
Aroclor-1260	4.2	4.11342	2.08
Surrogates			
Decachlorobiphenyl	4.55	4.2475	6.88
Tetrachloro-m-xylene	4.47	4.39728	1.64

B083290-BSD1 LCS Dup

Analyte	Results		%RPD
Aroclor-1016	3.7	3.39228	8.68
Aroclor-1260	3.5	3.59504	2.68
Surrogates			
Tetrachloro-m-xylene	3.87	3.86526	0.123
Decachlorobiphenyl	3.79	3.60406	5.03

October 24, 2013

Jeff Hamel
Woodard & Curran - Andover, MA
40 Shattuck Road., Suite 110
Andover, MA 01810

Project Location: MCLA - Bowman Hall
Client Job Number:
Project Number: 226296
Laboratory Work Order Number: 13J0676

Enclosed are results of analyses for samples received by the laboratory on October 17, 2013. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink, reading "Meghan E. Kelley". The signature is written in a cursive, flowing style.

Meghan E. Kelley
Project Manager

Woodard & Curran - Andover, MA
40 Shattuck Road., Suite 110
Andover, MA 01810
ATTN: Jeff Hamel

REPORT DATE: 10/24/2013

PURCHASE ORDER NUMBER:

PROJECT NUMBER: 226296

ANALYTICAL SUMMARY

WORK ORDER NUMBER: 13J0676

The results of analyses performed on the following samples submitted to the CON-TEST Analytical Laboratory are found in this report.

PROJECT LOCATION: MCLA - Bowman Hall

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
BOW-CBK-137A	13J0676-01	Caulk	grey out	SW-846 8082A	
BOW-CBK-137B	13J0676-02	Caulk	white mid	SW-846 8082A	
BOW-CBK-137C	13J0676-03	Caulk	grey inner	SW-846 8082A	
BOW-CBK-142	13J0676-04	Caulk	ph door	SW-846 8082A	

CASE NARRATIVE SUMMARY

All reported results are within defined laboratory quality control objectives unless listed below or otherwise qualified in this report.

The results of analyses reported only relate to samples submitted to the Con-Test Analytical Laboratory for testing.

I certify that the analyses listed above, unless specifically listed as subcontracted, if any, were performed under my direction according to the approved methodologies listed in this document, and that based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.

A handwritten signature in black ink, appearing to read "M. Erickson", is displayed on a light gray rectangular background.

Michael A. Erickson
Laboratory Director

Project Location: MCLA - Bowman Hall

Sample Description: grey out

Work Order: 13J0676

Date Received: 10/17/2013

Field Sample #: BOW-CBK-137A

Sampled: 10/15/2013 14:30

Sample ID: 13J0676-01

Sample Matrix: Caulk

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.71	mg/Kg	4		SW-846 8082A	10/21/13	10/23/13 23:17	WSD
Aroclor-1221 [1]	ND	0.71	mg/Kg	4		SW-846 8082A	10/21/13	10/23/13 23:17	WSD
Aroclor-1232 [1]	ND	0.71	mg/Kg	4		SW-846 8082A	10/21/13	10/23/13 23:17	WSD
Aroclor-1242 [1]	ND	0.71	mg/Kg	4		SW-846 8082A	10/21/13	10/23/13 23:17	WSD
Aroclor-1248 [1]	ND	0.71	mg/Kg	4		SW-846 8082A	10/21/13	10/23/13 23:17	WSD
Aroclor-1254 [1]	ND	0.71	mg/Kg	4		SW-846 8082A	10/21/13	10/23/13 23:17	WSD
Aroclor-1260 [1]	ND	0.71	mg/Kg	4		SW-846 8082A	10/21/13	10/23/13 23:17	WSD
Aroclor-1262 [1]	ND	0.71	mg/Kg	4		SW-846 8082A	10/21/13	10/23/13 23:17	WSD
Aroclor-1268 [1]	ND	0.71	mg/Kg	4		SW-846 8082A	10/21/13	10/23/13 23:17	WSD
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
Decachlorobiphenyl [1]	76.5	30-150							
Decachlorobiphenyl [2]	77.0	30-150							
Tetrachloro-m-xylene [1]	68.3	30-150							
Tetrachloro-m-xylene [2]	73.4	30-150							

Project Location: MCLA - Bowman Hall

Sample Description: white mid

Work Order: 13J0676

Date Received: 10/17/2013

Field Sample #: BOW-CBK-137B

Sampled: 10/15/2013 14:30

Sample ID: 13J0676-02

Sample Matrix: Caulk

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.70	mg/Kg	4		SW-846 8082A	10/21/13	10/23/13 20:29	WSD
Aroclor-1221 [1]	ND	0.70	mg/Kg	4		SW-846 8082A	10/21/13	10/23/13 20:29	WSD
Aroclor-1232 [1]	ND	0.70	mg/Kg	4		SW-846 8082A	10/21/13	10/23/13 20:29	WSD
Aroclor-1242 [1]	ND	0.70	mg/Kg	4		SW-846 8082A	10/21/13	10/23/13 20:29	WSD
Aroclor-1248 [1]	ND	0.70	mg/Kg	4		SW-846 8082A	10/21/13	10/23/13 20:29	WSD
Aroclor-1254 [1]	ND	0.70	mg/Kg	4		SW-846 8082A	10/21/13	10/23/13 20:29	WSD
Aroclor-1260 [1]	ND	0.70	mg/Kg	4		SW-846 8082A	10/21/13	10/23/13 20:29	WSD
Aroclor-1262 [1]	ND	0.70	mg/Kg	4		SW-846 8082A	10/21/13	10/23/13 20:29	WSD
Aroclor-1268 [1]	ND	0.70	mg/Kg	4		SW-846 8082A	10/21/13	10/23/13 20:29	WSD
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
Decachlorobiphenyl [1]	105	30-150							
Decachlorobiphenyl [2]	105	30-150							
Tetrachloro-m-xylene [1]	107	30-150							
Tetrachloro-m-xylene [2]	111	30-150							

Project Location: MCLA - Bowman Hall

Sample Description: grey inner

Work Order: 13J0676

Date Received: 10/17/2013

Field Sample #: BOW-CBK-137C

Sampled: 10/15/2013 14:30

Sample ID: 13J0676-03

Sample Matrix: Caulk

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.75	mg/Kg	4		SW-846 8082A	10/18/13	10/24/13 12:15	WSD
Aroclor-1221 [1]	ND	0.75	mg/Kg	4		SW-846 8082A	10/18/13	10/24/13 12:15	WSD
Aroclor-1232 [1]	ND	0.75	mg/Kg	4		SW-846 8082A	10/18/13	10/24/13 12:15	WSD
Aroclor-1242 [1]	ND	0.75	mg/Kg	4		SW-846 8082A	10/18/13	10/24/13 12:15	WSD
Aroclor-1248 [1]	ND	0.75	mg/Kg	4		SW-846 8082A	10/18/13	10/24/13 12:15	WSD
Aroclor-1254 [1]	ND	0.75	mg/Kg	4		SW-846 8082A	10/18/13	10/24/13 12:15	WSD
Aroclor-1260 [1]	ND	0.75	mg/Kg	4		SW-846 8082A	10/18/13	10/24/13 12:15	WSD
Aroclor-1262 [1]	ND	0.75	mg/Kg	4		SW-846 8082A	10/18/13	10/24/13 12:15	WSD
Aroclor-1268 [1]	ND	0.75	mg/Kg	4		SW-846 8082A	10/18/13	10/24/13 12:15	WSD
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
Decachlorobiphenyl [1]	81.6	30-150						10/24/13 12:15	
Decachlorobiphenyl [2]	86.6	30-150						10/24/13 12:15	
Tetrachloro-m-xylene [1]	64.0	30-150						10/24/13 12:15	
Tetrachloro-m-xylene [2]	70.9	30-150						10/24/13 12:15	

Project Location: MCLA - Bowman Hall

Sample Description: ph door

Work Order: 13J0676

Date Received: 10/17/2013

Field Sample #: BOW-CBK-142

Sampled: 10/15/2013 15:00

Sample ID: 13J0676-04

Sample Matrix: Caulk

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.68	mg/Kg	4		SW-846 8082A	10/21/13	10/23/13 20:43	WSD
Aroclor-1221 [1]	ND	0.68	mg/Kg	4		SW-846 8082A	10/21/13	10/23/13 20:43	WSD
Aroclor-1232 [1]	ND	0.68	mg/Kg	4		SW-846 8082A	10/21/13	10/23/13 20:43	WSD
Aroclor-1242 [1]	ND	0.68	mg/Kg	4		SW-846 8082A	10/21/13	10/23/13 20:43	WSD
Aroclor-1248 [1]	ND	0.68	mg/Kg	4		SW-846 8082A	10/21/13	10/23/13 20:43	WSD
Aroclor-1254 [1]	1.0	0.68	mg/Kg	4		SW-846 8082A	10/21/13	10/23/13 20:43	WSD
Aroclor-1260 [2]	1.5	0.68	mg/Kg	4		SW-846 8082A	10/21/13	10/23/13 20:43	WSD
Aroclor-1262 [1]	ND	0.68	mg/Kg	4		SW-846 8082A	10/21/13	10/23/13 20:43	WSD
Aroclor-1268 [1]	ND	0.68	mg/Kg	4		SW-846 8082A	10/21/13	10/23/13 20:43	WSD
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
Decachlorobiphenyl [1]	106	30-150						10/23/13 20:43	
Decachlorobiphenyl [2]	102	30-150						10/23/13 20:43	
Tetrachloro-m-xylene [1]	109	30-150						10/23/13 20:43	
Tetrachloro-m-xylene [2]	113	30-150						10/23/13 20:43	

Sample Extraction Data

Prep Method: SW-846 3540C-SW-846 8082A

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
13J0676-03 [BOW-CBK-137C]	B083228	0.531	10.0	10/18/13

Prep Method: SW-846 3540C-SW-846 8082A

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
13J0676-01RE1 [BOW-CBK-137A]	B083290	0.561	10.0	10/21/13
13J0676-02RE1 [BOW-CBK-137B]	B083290	0.570	10.0	10/21/13
13J0676-04RE1 [BOW-CBK-142]	B083290	0.592	10.0	10/21/13

QUALITY CONTROL
Polychlorinated Biphenyls with 3540 Soxhlet Extraction - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B083228 - SW-846 3540C
Blank (B083228-BLK1)

Prepared: 10/18/13 Analyzed: 10/24/13

Aroclor-1016	ND	0.20	mg/Kg							
Aroclor-1016 [2C]	ND	0.20	mg/Kg							
Aroclor-1221	ND	0.20	mg/Kg							
Aroclor-1221 [2C]	ND	0.20	mg/Kg							
Aroclor-1232	ND	0.20	mg/Kg							
Aroclor-1232 [2C]	ND	0.20	mg/Kg							
Aroclor-1242	ND	0.20	mg/Kg							
Aroclor-1242 [2C]	ND	0.20	mg/Kg							
Aroclor-1248	ND	0.20	mg/Kg							
Aroclor-1248 [2C]	ND	0.20	mg/Kg							
Aroclor-1254	ND	0.20	mg/Kg							
Aroclor-1254 [2C]	ND	0.20	mg/Kg							
Aroclor-1260	ND	0.20	mg/Kg							
Aroclor-1260 [2C]	ND	0.20	mg/Kg							
Aroclor-1262	ND	0.20	mg/Kg							
Aroclor-1262 [2C]	ND	0.20	mg/Kg							
Aroclor-1268	ND	0.20	mg/Kg							
Aroclor-1268 [2C]	ND	0.20	mg/Kg							
Surrogate: Decachlorobiphenyl	3.90		mg/Kg	4.00		97.6	30-150			
Surrogate: Decachlorobiphenyl [2C]	3.80		mg/Kg	4.00		95.1	30-150			
Surrogate: Tetrachloro-m-xylene	4.24		mg/Kg	4.00		106	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	4.14		mg/Kg	4.00		104	30-150			

LCS (B083228-BS1)

Prepared: 10/18/13 Analyzed: 10/24/13

Aroclor-1016	3.8	0.20	mg/Kg	4.00		95.0	40-140			
Aroclor-1016 [2C]	3.5	0.20	mg/Kg	4.00		87.3	40-140			
Aroclor-1260	3.6	0.20	mg/Kg	4.00		89.9	40-140			
Aroclor-1260 [2C]	3.7	0.20	mg/Kg	4.00		93.2	40-140			
Surrogate: Decachlorobiphenyl	3.97		mg/Kg	4.00		99.2	30-150			
Surrogate: Decachlorobiphenyl [2C]	3.88		mg/Kg	4.00		96.9	30-150			
Surrogate: Tetrachloro-m-xylene	3.97		mg/Kg	4.00		99.4	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	3.91		mg/Kg	4.00		97.8	30-150			

LCS Dup (B083228-BSD1)

Prepared: 10/18/13 Analyzed: 10/24/13

Aroclor-1016	4.7	0.20	mg/Kg	4.00		116	40-140	20.3	30	
Aroclor-1016 [2C]	3.8	0.20	mg/Kg	4.00		96.0	40-140	9.50	30	
Aroclor-1260	3.9	0.20	mg/Kg	4.00		97.8	40-140	8.42	30	
Aroclor-1260 [2C]	4.0	0.20	mg/Kg	4.00		101	40-140	8.12	30	
Surrogate: Decachlorobiphenyl	4.08		mg/Kg	4.00		102	30-150			
Surrogate: Decachlorobiphenyl [2C]	4.03		mg/Kg	4.00		101	30-150			
Surrogate: Tetrachloro-m-xylene	4.47		mg/Kg	4.00		112	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	4.37		mg/Kg	4.00		109	30-150			

QUALITY CONTROL
Polychlorinated Biphenyls with 3540 Soxhlet Extraction - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B083290 - SW-846 3540C
Blank (B083290-BLK1)

Prepared: 10/21/13 Analyzed: 10/23/13

Aroclor-1016	ND	0.20	mg/Kg							
Aroclor-1016 [2C]	ND	0.20	mg/Kg							
Aroclor-1221	ND	0.20	mg/Kg							
Aroclor-1221 [2C]	ND	0.20	mg/Kg							
Aroclor-1232	ND	0.20	mg/Kg							
Aroclor-1232 [2C]	ND	0.20	mg/Kg							
Aroclor-1242	ND	0.20	mg/Kg							
Aroclor-1242 [2C]	ND	0.20	mg/Kg							
Aroclor-1248	ND	0.20	mg/Kg							
Aroclor-1248 [2C]	ND	0.20	mg/Kg							
Aroclor-1254	ND	0.20	mg/Kg							
Aroclor-1254 [2C]	ND	0.20	mg/Kg							
Aroclor-1260	ND	0.20	mg/Kg							
Aroclor-1260 [2C]	ND	0.20	mg/Kg							
Aroclor-1262	ND	0.20	mg/Kg							
Aroclor-1262 [2C]	ND	0.20	mg/Kg							
Aroclor-1268	ND	0.20	mg/Kg							
Aroclor-1268 [2C]	ND	0.20	mg/Kg							
Surrogate: Decachlorobiphenyl	4.21		mg/Kg	4.00		105	30-150			
Surrogate: Decachlorobiphenyl [2C]	3.87		mg/Kg	4.00		96.7	30-150			
Surrogate: Tetrachloro-m-xylene	4.07		mg/Kg	4.00		102	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	3.95		mg/Kg	4.00		98.7	30-150			

LCS (B083290-BS1)

Prepared: 10/21/13 Analyzed: 10/23/13

Aroclor-1016	4.3	0.20	mg/Kg	4.00		107	40-140			
Aroclor-1016 [2C]	3.9	0.20	mg/Kg	4.00		97.1	40-140			
Aroclor-1260	4.2	0.20	mg/Kg	4.00		104	40-140			
Aroclor-1260 [2C]	4.1	0.20	mg/Kg	4.00		103	40-140			
Surrogate: Decachlorobiphenyl	4.55		mg/Kg	4.00		114	30-150			
Surrogate: Decachlorobiphenyl [2C]	4.25		mg/Kg	4.00		106	30-150			
Surrogate: Tetrachloro-m-xylene	4.47		mg/Kg	4.00		112	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	4.40		mg/Kg	4.00		110	30-150			

LCS Dup (B083290-BSD1)

Prepared: 10/21/13 Analyzed: 10/23/13

Aroclor-1016	3.7	0.20	mg/Kg	4.00		93.7	40-140	13.0	30	
Aroclor-1016 [2C]	3.4	0.20	mg/Kg	4.00		84.8	40-140	13.5	30	
Aroclor-1260	3.5	0.20	mg/Kg	4.00		88.6	40-140	16.3	30	
Aroclor-1260 [2C]	3.6	0.20	mg/Kg	4.00		89.9	40-140	13.4	30	
Surrogate: Decachlorobiphenyl	3.79		mg/Kg	4.00		94.7	30-150			
Surrogate: Decachlorobiphenyl [2C]	3.60		mg/Kg	4.00		90.1	30-150			
Surrogate: Tetrachloro-m-xylene	3.87		mg/Kg	4.00		96.7	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	3.87		mg/Kg	4.00		96.6	30-150			

FLAG/QUALIFIER SUMMARY

- * QC result is outside of established limits.
- † Wide recovery limits established for difficult compound.
- ‡ Wide RPD limits established for difficult compound.
- # Data exceeded client recommended or regulatory level

Percent recoveries and relative percent differences (RPDs) are determined by the software using values in the calculation which have not been rounded.

No results have been blank subtracted unless specified in the case narrative section.

CERTIFICATIONS

Certified Analyses included in this Report

Analyte

Certifications

No certified Analyses included in this Report

The CON-TEST Environmental Laboratory operates under the following certifications and accreditations:

Code	Description	Number	Expires
AIHA	AIHA-LAP, LLC	100033	02/1/2014
MA	Massachusetts DEP	M-MA100	06/30/2014
CT	Connecticut Department of Public Health	PH-0567	09/30/2015
NY	New York State Department of Health	10899 NELAP	04/1/2014
NH-S	New Hampshire Environmental Lab	2516 NELAP	02/5/2014
RI	Rhode Island Department of Health	LAO00112	12/30/2013
NC	North Carolina Div. of Water Quality	652	12/31/2013
NJ	New Jersey DEP	MA007 NELAP	06/30/2014
FL	Florida Department of Health	E871027 NELAP	06/30/2014
VT	Vermont Department of Health Lead Laboratory	LL015036	07/30/2014
WA	State of Washington Department of Ecology	C2065	02/23/2014
ME	State of Maine	2011028	06/9/2015
VA	Commonwealth of Virginia	460217	12/14/2013
NH-P	New Hampshire Environmental Lab	2557 NELAP	09/6/2014



Phone: 413-525-2332
Fax: 413-525-0405
Email: info@contestlabs.com
www.contestlabs.com

CHAIN OF CUSTODY RECORD

39 Spruce Street
East Longmeadow, MA 01028

Page 1 of 1

Company Name: Woodward & Lurran

Telephone: _____

Address: 40 Southfield Rd Suite 110 Andover, MA

Project # 226296

Attention: Harold, Gerald, E. Einarud

Project Location: MA - Bowman Hall

Sampled By: Kim Einarud

Project Proposal Provided? (for billing purposes)
☐ Yes ☐ No

Collection
Beginning Date/Time: _____ Ending Date/Time: _____
Format: ☐ PDF ☒ EXCEL ☐ GIS
☐ OTHER _____

Client PO# _____
DATA DELIVERY (check all that apply)
☐ FAX ☒ EMAIL ☐ WEBSITE

Fax # _____
Email: _____

Con-Test Lab ID	Client Sample ID / Description	Beginning Date/Time	Ending Date/Time	Composite	Grab	*Matrix	Units
<u>01</u>	<u>BOW-CBK-137A</u>	<u>10/15/13</u>	<u>1430</u>	<u>gray</u>	<u>out</u>	<u>L</u>	<u>U*</u>
<u>02</u>	<u>BOW-CBK-137B</u>	<u>10/15/13</u>	<u>1430</u>	<u>white</u>	<u>mid</u>	<u>L</u>	<u>U*</u>
<u>03</u>	<u>BOW-CBK-137C</u>	<u>10/15/13</u>	<u>1430</u>	<u>gray</u>	<u>inner</u>	<u>L</u>	<u>U*</u>
<u>04</u>	<u>BOW-CBK-142</u>	<u>10/15/13</u>	<u>1500</u>	<u>PA Dbr</u>	<u>inner</u>	<u>L</u>	<u>U*</u>

Comments: ① HOLD - 8082/3540C Soxhlet
② PL & longley
③ Potentially HOT. Sign of some material
④ PH & Roof Sealants

Please use the following codes to let Con-Test know if a specific sample may be high in concentration in Matrix/Cont. Code Box:
H - High, M - Medium, L - Low, C - Clean, U - Unknown

Relinquished by (signature): WRL Date/Time: 10/13/13 940
Received by (signature): WRL Date/Time: 10/13/13 940
Relinquished by (signature): WRL Date/Time: 10/13/13
Received by (signature): WRL Date/Time: 10/13/13

Turnaround Time Starts at 9:00 A.M. THE DAY AFTER SAMPLE RECEIPT UNLESS THERE ARE QUESTIONS ON YOUR CHAIN. IF THIS FORM IS NOT FILLED OUT COMPLETELY OR IS INCORRECT, TURNAROUND TIME WILL NOT START UNTIL ALL QUESTIONS ARE ANSWERED BY OUR CLIENT.

Turnaround Time: ☐ 7-Day ☐ 10-Day ☒ Other (Specify): RUSH
Detection Limit Requirements: _____
Is your project MCP or RCP? ☐ MCP Form Required ☐ RCP Form Required

MA State DW Form Required PWSID # _____
NELAC & AHA-LAP, LLC Accredited

WBE/DBE Certified

WBE/DBE Certified

PLEASE BE CAREFUL NOT TO CONTAMINATE THIS DOCUMENT

Sample Receipt Checklist

CLIENT NAME: Woodard & Curran RECEIVED BY: KOB DATE: 10-17-13

1) Was the chain(s) of custody relinquished and signed? Yes No No CoC Included

2) Does the chain agree with the samples? Yes No

If not, explain:

3) Are all the samples in good condition? Yes No

If not, explain:

4) How were the samples received:

On Ice ☒ Direct from Sampling ☐ Ambient ☐ In Cooler(s) ☒

Were the samples received in Temperature Compliance of (2-6°C)? Yes No N/A

Temperature °C by Temp blank _____ Temperature °C by Temp gun 4.2°

5) Are there Dissolved samples for the lab to filter? Yes No

Who was notified _____ Date _____ Time _____

6) Are there any RUSH or SHORT HOLDING TIME samples? Yes No

Who was notified _____ Date _____ Time _____

7) Location where samples are stored:

19

Permission to subcontract samples? Yes No
(Walk-in clients only) if not already approved
Client Signature: _____

8) Do all samples have the proper Acid pH: Yes No N/A

9) Do all samples have the proper Base pH: Yes No N/A

10) Was the PC notified of any discrepancies with the CoC vs the samples: Yes No N/A

Containers received at Con-Test

	# of containers		# of containers
1 Liter Amber		8 oz amber/clear jar	
500 mL Amber		4 oz amber/clear jar	
250 mL Amber (8oz amber)		2 oz amber/clear jar	<u>4</u>
1 Liter Plastic		Plastic Bag / Ziploc	
500 mL Plastic		SOC Kit	
250 mL plastic		Non-ConTest Container	
40 mL Vial - type listed below		Perchlorate Kit	
Colisure / bacteria bottle		Flashpoint bottle	
Dissolved Oxygen bottle		Other glass jar	
Encore		Other	

Laboratory Comments:

40 mL vials: # HCl _____ # Methanol _____
Bisulfate _____ # DI Water _____
Thiosulfate _____ Unpreserved _____

Time and Date Frozen:

Login Sample Receipt Checklist
(Rejection Criteria Listing - Using Sample Acceptance Policy)
Any False statement will be brought to the attention of Client

Question	Answer (True/False)	Comment
	T/F/NA	
1) The cooler's custody seal, if present, is intact.	NA	
2) The cooler or samples do not appear to have been compromised or tampered with.	T	
3) Samples were received on ice.	T	
4) Cooler Temperature is acceptable.	T	
5) Cooler Temperature is recorded.	T	
6) COC is filled out in ink and legible.	T	
7) COC is filled out with all pertinent information.	T	
8) Field Sampler's name present on COC.	T	
9) There are no discrepancies between the sample IDs on the container and the COC.	T	
10) Samples are received within Holding Time.	T	
11) Sample containers have legible labels.	T	
12) Containers are not broken or leaking.	T	
13) Air Cassettes are not broken/open.	NA	
14) Sample collection date/times are provided.	T	
15) Appropriate sample containers are used.	T	
16) Proper collection media used.	T	
17) No headspace sample bottles are completely filled.	T	
18) There is sufficient volume for all requested analyses, including any requested MS/MSDs.	T	
19) Trip blanks provided if applicable.	NA	
20) VOA sample vials do not have head space or bubble is <6mm (1/4") in diameter.	NA	
21) Samples do not require splitting or compositing.	T	

Doc #277 Rev. 4 August 2013

Who notified of False statements?
 Log-In Technician Initials: KOD

Date/Time:

Date/Time: 10-17-13 1330

13J0676-01RE1 BOW-CBK-137A

Analyte	Results		%RPD
Surrogates			
Tetrachloro-m-xylene	2.44	2.616114	6.97
Decachlorobiphenyl	2.73	2.746168	0.59

13J0676-02RE1 BOW-CBK-137B

Analyte	Results		%RPD
Surrogates			
Decachlorobiphenyl	3.68	3.691509	0.312
Tetrachloro-m-xylene	3.75	3.888632	3.63

13J0676-03 BOW-CBK-137C

Analyte	Results		%RPD
Surrogates			
Decachlorobiphenyl	3.08	3.263653	5.79
Tetrachloro-m-xylene	2.41	2.669454	10.2

13J0676-04RE1 BOW-CBK-142

Analyte	Results		%RPD
Aroclor-1254	1.0	1.024122	2.38
Aroclor-1260 [2C]	1.5	1.470811	1.97
Surrogates			
Decachlorobiphenyl	3.57	3.446824	3.51
Tetrachloro-m-xylene	3.67	3.817027	3.93

B083228-BLK1 Blank

Analyte	Results		%RPD
Surrogates			
Decachlorobiphenyl	3.90	3.8049	2.47
Tetrachloro-m-xylene	4.24	4.14352	2.3

B083228-BS1 LCS

Analyte	Results		%RPD
Aroclor-1016	3.8	3.49312	8.42
Aroclor-1260	3.6	3.72762	3.48
Surrogates			
Tetrachloro-m-xylene	3.97	3.91214	1.47
Decachlorobiphenyl	3.97	3.8751	2.42

B083228-BSD1 LCS Dup

Analyte	Results		%RPD
Aroclor-1016	4.7	3.84158	20.1
Aroclor-1260	3.9	4.04302	3.6
Surrogates			
Decachlorobiphenyl	4.08	4.02788	1.29
Tetrachloro-m-xylene	4.47	4.36692	2.33

B083290-BLK1 Blank

Analyte	Results		%RPD
Surrogates			
Decachlorobiphenyl	4.21	3.86632	8.51
Tetrachloro-m-xylene	4.07	3.94632	3.09

B083290-BS1 LCS

Analyte	Results		%RPD
Aroclor-1016	4.3	3.8846	10.2
Aroclor-1260	4.2	4.11342	2.08
Surrogates			
Decachlorobiphenyl	4.55	4.2475	6.88
Tetrachloro-m-xylene	4.47	4.39728	1.64

Analyte	Results		%RPD
Aroclor-1016	3.7	3.39228	8.68
Aroclor-1260	3.5	3.59504	2.68
Surrogates			
Tetrachloro-m-xylene	3.87	3.86526	0.123
Decachlorobiphenyl	3.79	3.60406	5.03

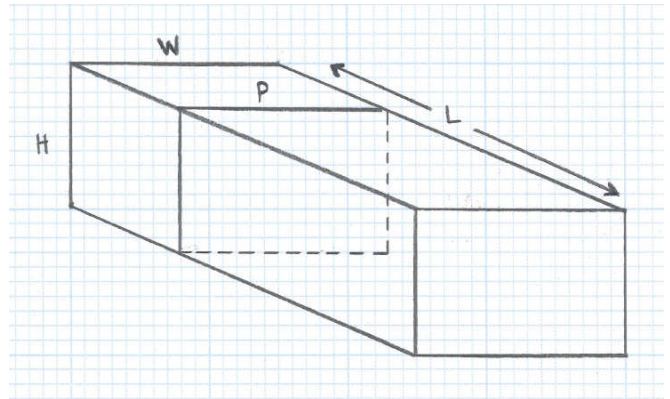
APPENDIX C: DUCTWORK CHARACTERIZATION APPROACH

Appendix C - Ductwork Characterization Approach



Ductwork Quantity Estimates

<i>Dimension</i>	<i>Qty</i>	<i>Unit</i>
Estimated Width (W):	2.00	ft
Estimated Height (H):	1.33	ft
Estimated Perimeter ($P = 2W + 2H$):	6.67	ft
Estimated Total Length (L):	1,680	ft
Estimated Total Area ($A = L \times P$):	11,200	ft ²
	1,040	m ²



Subpart N Characterization

§ 761.267 Sampling non-porous surfaces.

(a) *Sample large, nearly flat, non-porous surfaces by dividing the surface into roughly square portions approximately 2 meters on each side. Follow the procedures in § 761.302(a).*

Applicability to Ductwork:

For sampling purposes, assume that all ductwork is opened and "flattened" to represent one continuous "large, nearly flat, non-porous surface." Based on a calculated total ductwork surface area of 1,040 m², a large, nearly flat square area of this size would measure 32.2 meters on each side. Dividing this larger area into individual areas measuring 2 meters on each side results in 256 potential sample areas. Applying this calculation to the ductwork which has a "flattened" dimension of 6.67 feet from the perimeter measurement, a potential sample area would occur every 6.5 feet of length (6.67 ft perimeter * 6.5 ft length = 43 ft², equivalent to a 2 meter by 2 meter area).

Following the procedures in § 761.302(a) to determine the proportion of the total surface area to sample, a minimum of 10% of the potential sample areas will be selected for sampling. A sample collected from 10% of the 256 potential areas results in 26 samples.

Implementation Notes:

1. Twenty-six (26) samples over 1,680 l.f. of ductwork represents 1 sample per 65 l.f. of ductwork. Because this was calculated for the estimated average ductwork dimension, this frequency will be applied assuming the ductwork is within 6 inches of the assumed size; larger pieces of ductwork would be assessed individually.
2. At each area selected for sampling, the sample location will be biased toward the edge of a cut line (approximately 6 inches from the caulked seam).

APPENDIX D: PRODUCT SPECIFICATION SHEETS



5 Minute® Epoxy

Description:	A rapid-curing, general purpose adhesive/encapsulant.
Intended Use:	Bonds metals, fabrics, ceramics, glass, wood, and concrete (in combinations)
Product features:	100% reactive, no solvents Good solvent resistance Bonds metals, fabrics, wood, and concrete
Limitations:	None

Typical Physical Properties: *Technical data should be considered representative or typical only and should not be used for specification purposes.*

Cured 7 days @ 75° F

Adhesive Tensile Lap Shear[GBS]	1,900 psi @ 0.005" bondline
Dielectric Strength	490 volts/mils
Gap Fill	Good
Impact Resistance	5.5 ft.lb./in.(2)
Shore Hardness	85 Shore D
Solids by Volume	100
Specific Volume	25.1 in.[3]/lb.
Tensile Elongation	1%
Tpeel	2-3 pli

TESTS CONDUCTED

Adhesive Tensile Shear ASTM D 1002
Dielectric Strength, volts/mil ASTM D 149
Cured Hardness Shore D ASTM D 2240
Cured Density ASTM D 792

Uncured

Color	Light Amber
Fixture Time	10-15 min. @ 72°F
Full Cure	12
Functional Cure	3/4 - 1 hr. @ 72°F
Mix Ratio by Volume	1:1
Mix Ratio by Weight	1:1
Mixed Density	9.17 lbs./gal.: 1.10 gm/cc
Mixed Viscosity	10,000 cps
Service Temperature	Dry, -40°F to 200°F
Working Time	3-6 min. (28 gm @ 72°F)

Surface Preparation: Clean surface by solvent-wiping any deposits of heavy grease, oil, dirt, or other contaminants. Surface can also be cleaned with industrial cleaning equipment such as vapor phase degreasers or hot aqueous baths. If working with metal, abrade or roughen the surface to significantly increase the microscopic bond area and increase the bond strength.

Mixing Instructions: ---- Proper homogenous mixing of resin and hardener is essential for the curing and development of stated strengths. ----

25 ML DEV-TUBE

1. Squeeze material into a small container the size of an ashtray.
2. Using mixing stick included on Dev-tube handle, vigorously mix components for one (1) minute.
3. Immediately apply to substrate.

50 ML/400ML/490 ML CARTRIDGES

1. Attach cartridge to Mark V™ [50ml] 400ml manual or pneumatic dispensing systems.
2. Open tip.
3. Burp cartridge by squeezing out some material until both sides are uniform (ensures no air bubbles are present during mixing).
4. Attach mix nozzle to end of cartridge.
5. Apply to substrate.

Application Instructions: 1. Apply mixed epoxy directly to one surface in an even film or as a bead.
2. Assemble with mating part within recommended working time.

3. Apply firm pressure between mating parts to minimize any gap and ensure good contact (a small fillet of epoxy should flow out the edges to display adequate gap fill.)

For very large gaps:

1. Apply epoxy to both surfaces
2. Spread to cover entire area OR make a bead pattern to allow flow throughout the joint

Let bonded assemblies stand for recommended functional cure time prior to handling.

CAPABILITIES:

Can withstand processing forces
Do not drop, shock load, or heavily load

Storage: Store in a cool, dry place.

Compliances: None

Chemical Resistance: *Chemical resistance is calculated with a 7 day, room temp. cure (30 days immersion) @ 75 °F)*

Acetic (Dilute) 10%	Poor	Hydrochloric 10%	Poor
Acetone	Poor	Isopropanol	Poor
Ammonia	Poor	Kerosene	Excellent
Corn Oil	Excellent	Methyl Ethyl Ketone	Poor
Cutting Oil	Excellent	Mineral Spirits	Excellent
Ethanol	Poor	Motor Oil	Excellent
Gasoline (Unleaded)	Excellent	Sodium Hydroxide 10%	Poor
Glycols/Antifreeze	Fair	Sulfuric 10%	Poor

Precautions: Please refer to the appropriate material safety data sheet (MSDS) prior to using this product.

For technical assistance, please call 1-800-933-8266

FOR INDUSTRIAL USE ONLY

Warranty: Devcon will replace any material found to be defective. Because the storage, handling and application of this material is beyond our control, we can accept no liability for the results obtained.

Disclaimer: All information on this data sheet is based on laboratory testing and is not intended for design purposes. ITW Devcon makes no representations or warranties of any kind concerning this data.

Order Information:

14210	2.5 oz.
14630	9 lb.
DA051	400 ml cartridge
14250	25 ml DevTube
14200	15 oz.
14270	50 ml Dev-Pak
14098	14cc syringe

Product Data Sheet

Edition 3.12.2009

Identification no. 604

Sikagard 670W

Sikagard® 670W

Water dispersed, acrylic, protective,
anti-carbonation coating

Description	Sikagard 670W is a water dispersed colored, acrylic, protective coating. Sikagard 670W prevents moisture ingress, is water vapor permeable and provides an excellent carbonation barrier.
Where to Use	Above grade, exterior application on buildings or civil engineering structures. It is designed to aesthetically enhance and protect concrete and other masonry substrates subject to normal hydrothermal movement. Protective, decorative seal coat for SikaColor and Sikadur Balcony Systems.
Advantages	<ul style="list-style-type: none">■ Easy to apply.■ Extremely resistant to dirt pick-up and mildew.■ Excellent resistance to carbon dioxide and other aggressive gas diffusion.■ Excellent UV resistance.■ Excellent weathering resistance.■ Prevents ingress of chlorides.■ Cost effective protection.■ Vapor permeable; allows each way water vapor diffusion (breathable).
Coverage	Theoretical per coat: 300 sq. ft./gal. Wet film thickness: 5 mils. Dry film thickness: 2.5 mils. Normal coating system is two coats minimum at a total nominal dry film thickness of 5 mils. Consumption is obviously dependent on substrate. In addition, allowance must be made for surface profile, variations in applied film thickness, loss and waste. A third coat may be necessary where opacity is reduced through thinning of the first coat, on dense substrates or with very bright color shades.
Packaging	5 gallon, re-closable plastic pails.
How to Use	
Surface preparation	All surfaces to be coated must be clean, dry, laitance free, sound and frost-free with curing compound residues and any other contaminants removed. An open textured sandpaper-like surface is ideal (CSP-3). Where necessary, surfaces should be prepared mechanically by blast cleaning or high pressure waterjetting. Allow adequate time for drying. Bugholes, cracks or irregularities of substrate should be filled and leveled with SikaTop, Sika MonoTop leveling mortar or Sikagard Surface Fillers as appropriate.

Typical Data (Material and curing conditions at 73°F (23°C) and 50% R.H.)

Shelf Life	1 year in original, unopened container.	
Storage Conditions	Store dry at 40°-95°F (4°-35°C). Condition material to 60°-75°F before using. Protect from freezing. If frozen, discard.	
Colors	463 standard colors. Custom color-matching available.	
Pot Life	Indefinite, provided proper care is taken in protecting the system from moisture, freezing, contamination, or evaporation.	
Solids Content	by weight: 60%	by volume: 46%
Waiting and Drying Times		
Between Coats:	Rain Resistant After	Final Drying
45°F (7°C) approx. 90 min.	approx. 5 hours	approx. 24 hours
68°F (20°C) approx. 30 min.	approx. 1 hour	approx. 4 hours
85°F (30°C) approx. 20 min.	approx. 40 min.	approx. 3 hours
Water Vapor Diffusion (at 5 mils. = 120 microns dry film thickness)		
μ - value H ₂ O (diffusion coefficient) = 3,140		
SdH ₂ O (equivalent air thickness) = 1.3 ft. (0.4 m)		
Carbon Dioxide Diffusion (at 5 mils. = 120 microns dry film thickness)		
μ - value CO ₂ (diffusion coefficient) = 1,100,000		
SdCO ₂ (equivalent air thickness) = 433 ft. (132 m.)		
Equivalent concrete thickness (Sc) = approximately 13 inches (33 cm.)		
Moisture Vapor Permeability (ASTM E-96)	17.9 Perms	
Flame Spread and Smoke Development (ASTM E-84-94)		
Flame Spread: 0	Smoke Development: 5	Class Rating: A
Weathering (ASTM G-26)	2000 hours	Excellent, no chalking or cracking.

Construction

Sika®

Priming	All porous areas or concrete with excessive porosity should be primed using Sikagard 552W Primer or SikaLatex R to allow easy application of Sikagard 670W.
Mixing	Stir thoroughly to ensure uniformity using a low speed (400-600 rpm) drill and Sika paddle. To minimize color variation when using multiple batches, blend two batches of Sikagard 670W. Use one pail and maintain the second pail to repeat this procedure (boxing) for the entire application.
Application	<p>Any areas of glass or other surfaces should be masked. Recommended application temperatures (ambient and substrate) 45°-95°F (5°-35°C). Sikagard 670W can be applied by brush, roller, or spray over entire area moving in one direction. Allow a minimum of 20-90 minutes prior to re-coating. At lower temperatures and high humidity, waiting time will be prolonged. At higher temperatures, work carefully to maintain a 'wet' edge. Sikagard 670W is usually applied using a short nap lambs wool roller. Sikagard 670W is particularly suitable for application by spray using the most standard spray painting equipment. As with all coatings, jobsite mock-ups should always be completed to confirm acceptability of workmanship and material.</p> <p>Note: To achieve a dry film thickness of 4-6 mils., two uniform coats should be anticipated. On porous substrates, a third coat may be necessary and on particularly dense substrates, the first coat should be thinned 10% by volume with water. A third coat may then be needed for opacity.</p> <p>As a protective, decorative seal coat: Apply with a short nap roller at a rate of 160 sq. ft./gal. (10 mils, wft) after the second coat of SikaColor has cured. On the Sikadur Balcony System, the 670W seal coat is applied with a short nap roller at a rate of 160 sq. ft. per gallon (10 mils., wft) after all excess broadcast sand has been removed from the cured, broadcasted Sikadur 22 Lo-Mod layer.</p>
Limitations	<ul style="list-style-type: none"> ■ Do not use over moving cracks. ■ Substrate must be dry prior to the application. ■ Minimum age of concrete prior to the application is 14 days, depending on curing and drying conditions (moisture content must be below 5%). ■ Minimum age of SikaTop or Sika MonoTop thin layer renderings is 3 days prior to the application of 670W (moisture content must be below 5%). ■ Sikagard 670W should not be applied at relative humidities greater than 90%, or if rain is forecast within the specified rain resistance period. ■ Allow sufficient time for the substrate to dry after rain or other inclement conditions. ■ Product must be protected from freezing. If frozen, discard. ■ Not designed for use as a vehicular traffic bearing surface. ■ During application, regular monitoring of wet film thickness and material consumption is advised to ensure that the correct layer thickness is achieved. ■ When overcoating existing coatings, compatibility and adhesion testing is recommended. ■ Do not store Sikagard 670W in direct sunlight for prolonged periods.
Caution Warning	Avoid breathing vapors. Use only with adequate ventilation. May cause respiratory irritation and headaches.
Irritant	Skin, eye, and respiratory irritant; avoid contact. Use of safety goggles and chemical resistant gloves is recommended. Remove contaminated clothing.
First Aid	In case of eye contact, flush with water for 15 minutes, contact physician immediately. For skin contact, wash skin with soap water. For respiratory problems, remove person to fresh air. Wash clothing before re-use.
Spill Clean Up	Confine spill, ventilate closed areas, and collect with absorbent material. Dispose of in accordance with current, applicable, local, state, and federal regulations. Uncured material can be removed water. Cured material can only be removed mechanically.

KEEP CONTAINER TIGHTLY CLOSED • KEEP OUT OF REACH OF CHILDREN • NOT FOR INTERNAL CONSUMPTION • FOR INDUSTRIAL USE ONLY

All information provided by Sika Corporation ("Sika") concerning Sika products, including but not limited to, any recommendations and advice relating to the application and use of Sika products, is given in good faith based on Sika's current experience and knowledge of its products when properly stored, handled and applied under normal conditions in accordance with Sika's instructions. In practice, the differences in materials, substrates, storage and handling conditions, actual site conditions and other factors outside of Sika's control are such that Sika assumes no liability for the provision of such information, advice, recommendations or instructions related to its products, nor shall any legal relationship be created by or arise from the provision of such information, advice, recommendations or instructions related to its products. The user of the Sika product(s) must test the product(s) for suitability for the intended application and purpose before proceeding with the full application of the product(s). Sika reserves the right to change the properties of its products without notice. All sales of Sika product(s) are subject to its current terms and conditions of sale which are available at www.sikacorp.com or by calling 800-933-7452.

Prior to each use of any Sika product, the user must always read and follow the warnings and instructions on the product's most current Technical Data Sheet, product label and Material Safety Data Sheet which are available online at www.sikaconstruction.com or by calling Sika's Technical Service Department at 800-933-7452. Nothing contained in any Sika materials relieves the user of the obligation to read and follow the warnings and instruction for each Sika product as set forth in the current Technical Data Sheet, product label and Material Safety Data Sheet prior to product use.

LIMITED WARRANTY: Sika warrants this product for one year from date of installation to be free from manufacturing defects and to meet the technical properties on the current Technical Data Sheet if used as directed within shelf life. User determines suitability of product for intended use and assumes all risks. Buyer's sole remedy shall be limited to the purchase price or replacement of product exclusive of labor or cost of labor. **NO OTHER WARRANTIES EXPRESS OR IMPLIED SHALL APPLY INCLUDING ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. SIKASHALLNOTBELIABLEUNDERANYLEGALTHEORYFORSPECIALORCONSEQUENTIALDAMAGES. SIKASHALLNOTBERESPONSIBLE FOR THE USE OF THIS PRODUCT IN A MANNER TO INFRINGE ON ANY PATENT OR ANY OTHER INTELLECTUAL PROPERTY RIGHTS HELD BY OTHERS.**

Visit our website at www.sikaconstruction.com

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Regional Information and Sales Centers. For the location of your nearest Sika sales office, contact your regional center.

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